

Exhibit H

**IN THE UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF OHIO
EASTERN DIVISION**

TELEBRANDS CORPORATION,) Case No. 1:23-cv-00631-BMB
)
Plaintiff,) Judge Bridget Meehan Brennan
)
v.)
)
WINSTON PRODUCTS LLC,)
)
Defendant.)

REBUTTAL EXPERT DECLARATION OF JOHN M. FELAND, III, PH.D

1. My name is John M. Feland, III, and I have been retained as an expert by Tucker Ellis LLP on behalf of Defendant Winston Products LLC (“Winston”) in the above-captioned lawsuit.
2. I provide this declaration in response to the “Declaration of Dr. James L. Glancey Regarding Claim Construction of U.S. Patent Nos. 10,174,870; 10,890,278; and 11,608,915” (the “Glancey Declaration”). In this declaration I respond to Dr. Glancey’s opinions about how one of ordinary skill in the art would interpret the following disputed claim terms and phrases from U.S. Patent Numbers 10,174,870 (“the ‘870 Patent”), 10,890,278 (“the ‘278 Patent”), and 11,608,915 (“the ‘915 Patent”) (collectively, the “Patents-in-Suit”) which I understand Plaintiff asserts against Defendant:

GROUP A:

“secured”

“to couple”

“coupled to”

GROUP B:

“said inner and outer tubes unsecured between said first and second ends so that said outer tube is not held in frictional contact with said inner tube so that said outer tube can move freely along said inner tube”

“said inner tube is unsecured to said outer tube between said first and second ends so that said outer tube can move freely over said inner tube”

“said flexible inner tube unsecured to said flexible outer tube between said first and second ends so that said flexible outer tube can move freely over said flexible inner tube”

GROUP C:

“a first restrictor sleeve secured to said first end of said inner and said outer tubes”

“a first restrictor sleeve secured to said first end of said flexible inner tube and said flexible outer tube”

“a second restrictor sleeve secured to said second end of said inner and said outer tubes”

“a second restrictor sleeve secured to said second end of said flexible inner tube and said flexible outer tube”

GROUP D:

“a first securing device securing said first restrictor sleeve, said outer tube, and said inner tube to said first coupler”

“a first securing device securing said first restrictor sleeve, said flexible outer tube, and said flexible inner tube to said first coupler”

“a second securing device securing said another expansion restrictor sleeve, said outer tube, and said inner tube to said second coupler”

“a second securing device securing said second expansion restrictor sleeve, said flexible outer tube, and said flexible inner tube to said second coupler”

(collectively, the “Disputed Claim Terms”).

3. I understand that the parties reached agreement on construction of the following claim terms:

- “first coupler” means “a first connecting device/fitting”

- “second coupler” – “a second connecting device/fitting”
- “extend around an outer circumference of said hose” means “extend around the outside of the hose”

(collectively, the “Agreed Claim Terms”).

4. In reaching my opinions expressed in this declaration, I have reviewed and considered the Glancey Declaration and the materials cited therein, as well as the Patents-in-Suit, their file histories and the dictionaries cited herein.

5. My opinions are independent and are based upon my professional knowledge and experience.

I. BACKGROUND AND QUALIFICATIONS

6. As described more fully in my curriculum vitae attached as Appendix B, I received my Bachelors of Science in Mechanical Engineering from the Massachusetts Institute of Technology in 1994. Thereafter, in 1996, I received my Masters of Science in Mechanical Engineering from Stanford University in Stanford, California. In 2005, I received my Ph.D. in Mechanical Engineering from Stanford University in Stanford, California.

7. I am currently a Principal Strategic at CableLabs, a non-profit think tank for the broadband industry. I pursue a mixture of quantitative and qualitative research on consumer behaviors and preferences. I also coach innovation teams and work extensive in Artificial Intelligence Strategy.

8. I also maintain Argus Insights Inc. While initially started to commercialize my PhD research connecting good design to good business, the company has pivoted in the last six years to be a market research and expert witness consulting firm.

9. I have been practicing as an engineer since 1991 across a range of industries and roles. While working at Dart Container Corporation in Mason, Michigan, I was involved in testing

and evaluating a hydraulic press designed to aid in the recycling of polystyrene in quick serve restaurants. I also worked on paper cup printers which also contained hydraulic subsystems. These hydraulic systems required me to work with high pressure hydraulic hoses in the design, operation and evaluation of these systems.

10. During my time working at Symyx Technologies, I was responsible for designing fluid condition sensors using MEMS technology for various applications. These applications included measuring the oil condition within automotive engines, assessing the ratio of lubricant and coolant for large HVAC systems, and assessing oil condition within hydraulic systems. Part of my responsibility was the design of the sensor housing that could couple into fluidic systems for fluid condition assessment, including the design of threaded couplers similar to the Patents-in-Suit.

11. As a design engineer at IDEO Product Development, I worked on the design and testing of multiple fluid management systems, including urinalysis equipment, fluid controllers for a blood testing device, and bioreactors for growing artificial skin for burn victims.

12. While CEO of Argus Insights Inc. I created and utilized consumer analytics tools that ingested millions of consumer reviews across a broad swath of consumer products, including smart home devices. Some of these products were for controlling or sensing fluidic systems, such as smart sprinkler systems from companies like Rachio or smart water cutoff valves from companies such as Moen. In the analysis of these products, I was able to develop an understanding how consumers interface with home fluidic systems, where they found challenges and where there were opportunities.

13. I have also been a professor of mechanical engineering at the United States Air Force Academy and Stanford University. I taught courses in mechanical design, solid mechanics,

design process, as well as capstone sequence. While at the Air Force Academy, I also was the advisor of the Formula SAE Mini Baja which included the design, testing and implementation of hydraulic braking systems.

14. As a high school teacher at the Nueva School, I taught an introduction to mechanical engineering course that covered topics in mechanical systems, solid mechanics, thermodynamics, and fluid mechanics. The section on fluid mechanics included the design and analysis of simple water transport systems.

15. Prior to my time as a practicing engineer, I worked extensively on the family farm in rural Arkansas. We had an almost one-acre garden, almost one hundred head of cattle, three horses, and two chicken houses in which we raised, from baby chicks, almost 30,000 chickens every six weeks for Tyson Foods. We routinely used garden hoses to irrigate the garden and fill water troughs for cattle and horses. Within the chicken houses, garden hoses are used throughout the lifecycle. When chicks are young, they cannot drink from the same watering system that is used by adolescent chickens. These smaller watering systems are attached to sources of water using garden hoses and temporarily dispersed through the chicken houses. These were used only for a few days during each batch of chickens and required that we couple and uncouple multiple lengths of garden hose. Additionally, the watering systems used by the adolescent chickens would be lowered from the ceiling. These watering troughs were connected to water sources by hoses as well. We would also use garden hoses to clean out the feeding and watering equipment used by baby chicks as well as other routine tasks around the chicken houses.

16. Since leaving the family farm, I have continued, with a few gaps based on living situations, to be involved in some sort of yard work or garden tending that required the use and maintenance of garden hoses. Additionally, I have developed skills within home plumbing,

including methods of securing both plastic and copper pipes for fluid transport.

17. I also have experience as an inventor. I have been granted 5 U.S. and related foreign patents relating to the use of MEMS sensors to assess the viscosity and density of fluids used in various industrial contexts, including HVAC systems, hydraulic systems and automotive engines, as well as patents related to the design and use of capacitive sensors that are user interface elements in consumer electronics.

18. My current professional affiliations include the MIT Alumni Group, the MIT Club of Northern California. In the past, I have been affiliated with the MIT-Stanford Venture group as an Executive board member. In the past, I was also active in the American Society of Mechanical Engineers, the American Society of Engineering Education and was a founding member of the International Design Society. Additionally, I was also on the board of advisors of the Stanford Center for Critical Foresight.

19. The following is a list of key awards and honors throughout my career.

- Red Dot Design Concept Award winner for the Onyx Mobile Phone Concept, world's first functioning multitouch mobile phone experience (2006)
- Guest Editor of Special Issue on Innovation for the International Journal of Engineering Education (2004)
- ASEE Apprentice Faculty Grant Winner (2003)
- ASME Curriculum Innovation Award, Honorable Mention (2002)
- Air Force Commendation Medal, First Oak Leaf Cluster (2001)
- Top Junior Faculty of USAFA School of Engineering (2001)
- Who's Who in the World and America
- Instructor of the Quarter, Department of Engineering Mechanics (2000)
- Joint Achievement Medal (1999)
- Air Force Commendation Medal (1999)
- Joint Analysis Center Most Valuable Contributor Award during week 5 of Operation Allied Force in Kosovo (1999)
- Merit Award, Lincoln Foundation Design Competition (1996)
- Professor of Aerospace Studies Award for Top Senior Air Force ROTC Cadet from MIT, Harvard, Tufts, & Wellesley (1994)

20. My publications in the last ten years were mostly research reports and marketing

pieces for Argus Insights. A full list of publicly available publications is available upon request.

21. During the previous four years, I have testified as an expert by deposition or trial in the following matters:

- *Nine Stars Group USA Inc. v. Factory Direct Wholesale, LLC*, Case No. 2:18-cv-06471-PSG-PJW, (US District Court, Northern District, CA)
- *ANCORA TECHNOLOGIES, INC., v. LG ELECTRONICS INC. and LG ELECTRONICS U.S.A., INC.*, Civil Action No. 1:20-cv-00034-ADA (United States District Court For The Western District Of Texas Austin Division)

22. I am being compensated at the rate of \$500 an hour for my work on this matter, and \$250 per hour for travel time. It is my understanding that IMS Expert Services, through which I was engaged for this matter, receives an administrative and finder's fee but I am not aware of the amount. My compensation has not influenced my view on any of these matters and does not depend in any way on the outcome in this case.

II. LEGAL PRINCIPLES

23. I am not an attorney, but for purposes of this declaration I have been apprised by Defendant's counsel of certain legal principles that are relevant to my analysis and opinions.

24. First, I understand that before a determination on infringement or validity of a patent can be made, the claims themselves must be construed by the Court in a process called claim construction. I understand that the purpose of claim construction is for the Court to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement.

25. I understand the claim construction analysis begins with the ordinary meaning of the disputed term or phrase, and that there is a presumption that claim terms carry their accustomed meaning to persons of ordinary skill in the art. I have been informed that the ordinary meaning of a claim term is determined by reviewing a variety of sources that make the claim construction

hierarchy. In particular, one looks to the claims themselves, then the specification and the patent's prosecution history. I understand these sources constitute the intrinsic evidence.

26. I further understand that the intrinsic evidence is the single best guide to a claim term or phrase's meaning as it can clarify what meaning the patentee intended a term or phrase to have. That being said, I understand that generally, limitations from the specification, such as certain embodiments, cannot be imported into the claims.

27. I have been apprised that courts can look next to extrinsic evidence which includes dictionaries and treatises as well as expert testimony, such as my own. Dictionary definitions may help establish the plain and ordinary meaning of claim terms, but reference should also be made to the intrinsic record to determine which dictionary definitions are most appropriate in light of the use of the terms or phrases by the inventor. I also understand that extrinsic evidence is given less weight than the intrinsic record in construing claims.

28. I understand that while interpreting patent claims, every word and every provision is to be given effect. In other words, terms and phrases within the same claim are presumed to have different meanings to avoid redundancy. Further, I understand that the meaning of every word and phrase is presumed to be consistent between the all of the patent claims. Finally, I understand that different claims are presumed to have different meanings and therefore cover alternative or more narrow embodiments of the claimed invention.

29. I understand that a patent is required to include a written description using full, clear, concise, and exact terms consistently throughout the written description so that the invention is communicated to the interested public in a meaningful way. Further, the written description must enable a person of ordinary skill in the art (a "POSITA") to make or use the invention. In other words, the written description of the patent must include enough detail such that a POSITA is

sufficiently enabled to practice the invention without undue experimentation.

30. Finally, I understand that claim terms may need to be interpreted under 35 U.S.C. § 112(f) (or pre-AIA 35 U.S.C. § 112 sixth paragraph). This provision may be invoked when a claim limitation includes a means for performing a specified function without the recital of structure. Claim limitations are most commonly construed under § 112(f) when they specifically include means-plus-function language. Claim limitations can also be construed under this provision, however, if they include a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. When a claim limitation is interpreted under 35 U.S.C. § 112(f) (or pre-AIA 35 U.S.C. § 112 sixth paragraph), the limitation can be construed to cover only the corresponding structure(s) that is described in the written description of the patent and equivalents thereof.

III. LEVEL OF ORDINARY SKILL IN THE ART

31. I understand that my assessment of the Disputed Claim Terms must be conducted from the perspective of what would have been known or understood by a POSITA reading the patent on its relevant filing date and in light of its prosecution history. I understand the priority date for the Patents-in-Suit is November 4, 2011.

32. To determine the appropriate level of skill for a POSITA, I understand the following factors may be considered: (1) the types of problems encountered by those who work in the field and prior art solutions thereto; (2) the sophistication of the technology in question and the rapidity with which innovations occur in the field; and (3) the education level of the workers in the field as well as the inventor.

33. Dr. Glancey opines that a POSITA as of the priority of the Patents-in-Suit would,

in effect, be a relatively novice engineer, i.e., one who “would hold a Bachelor’s Degree in Mechanical Engineering or a closely related technical field and would have at least two years of experience in the manufacture, design and/or the application and use of hoses for various types of fluids.” (Glancey, Para 39). He goes on to describe that this person would be “capable of performing various design tasks and would understand the basic mechanical and fluid features and operation of expandable and contractible hoses; this hypothetical person would also have at least a basic knowledge of fluid mechanics, solid mechanics, and materials science and engineering as they relate to hoses and how hoses generally function to convey fluids from one place to another.” (Glancey, Para 39).

34. Given the typical lifecycle involved in the design, manufacturing and sales of consumer products, Dr. Glancey’s POSITA would likely have only a single product lifecycle of experience regarding this technology, lacking the benefit of learning from mistakes with prior product launches or having sufficient knowledge of how consumers are using this technology. Additionally, Dr. Glancey describes the necessary skills in broad, vague terms, taken from a generic mechanical engineering curriculum and then rapidly narrowing to the field of hoses without detailing the types of knowledge necessary for this technology.

35. In my opinion, a POSITA would require more skills and knowledge than what is indicated by Dr. Glancey’s proffered definition of a POSITA to be able to effectively practice the technology taught by the Patents-in-Suit. For example, the knowledge required to select the right material and thickness for the inner tube requires the POSITA to understand in depth the field of elastomeric polymers, specifically polymer compounds that meet the requirements taught in the patent to expand laterally by six times its original length while sustaining the flow of liquid at pressure. Additionally, since this technology is designed to be reusable, a POSITA would have to

understand how to select a material that can be repeatedly elastically deformed without degrading to the point of failure. While Dr. Glancey's relatively recent mechanical engineering graduate might understand the theory behind solid mechanics that governs these necessary skills regarding the technology in the Patents-in-Suit, it is only with more experience beyond undergraduate and two years of experience, directly with elastomers that a POSITA would be sufficient skilled to reduce this technology to practice.

36. Dr. Glancey also neglects to detail the differences between the hose types disclosed in the Patents-in-Suit and his generic treatment of hoses. For example, the design and use of high pressure hydraulic hoses, used in such systems as earth moving equipment, farm machinery, and waste compactors in the retail and restaurant industries, require a very different set of engineering skills than for the hoses taught in these patents. The specification focuses on the transport of water in garden hoses or for fire hoses and suggest pressures around 60 psi from household sources of pressurized fluid. Industrial hydraulic systems require hoses that can transport fluids at thousands of psi, often 100 times greater than the example 35 psi at said second end cited in the specifications. These high-pressure hoses, while designed to be flexible along rotational degrees of freedom so that the fluid can be routed around the hydraulic system with minimal pressure loss, are designed to minimize lateral and longitudinal flexibility, given the high pressures and requirements to design for factors of safety of 4 to 1. If the hydraulic system is supposed to transport hydraulic fluid at 6000 psi, then the hose must be able to withstand pressures of up to 24,000 psi, which is 400 times higher than that of the household source of pressurized fluid cite in the specification. Dr. Glancey's POSITA, having only spent their two years working experience on hydraulic hoses (which are explicitly required to minimize expansion laterally and longitudinally), would not have the experience with the materials or manufacturing of what is

required for the technology disclosed in the Patents-in-Suit. As such, Dr. Glancey's definition of a POSITA "would have at least two years of experience in the manufacture, design and/or the application and use of hoses for various types of fluids" is too broad for purposes of accurately characterizing a POSITA capable of reducing the technology disclosed in the Patents-in-Suit to practice. (Glancey, Para 39).

37. Aside from hydraulic hoses, Dr. Glancey's broad, imprecise descriptor of experience with "various types of fluids" in his definition of POSITA would appear to include gases such as those used in semiconductor manufacturing, or even compressed air hoses used in machine shops. Handling gases is very different than handling liquids. In the area of industrial gases used in semiconductor manufacturing, the hoses must be designed to be utilized in a clean room environment, where materials must be selected based on their ability not to shed excess particles which could contaminate the semiconductor manufacturing process. Within the design of compressed air hoses for use in shop situations, similar to the design of hydraulic hoses, minimizing the lateral and longitudinal elastic deformation is critical to the operation of tools. Hoses used in these rugged environments such as machine shops prioritize wear and crush resistance over repeated expansion or contraction. A person with only two years designing hoses for the transport of fluids in a gaseous state would not have sufficient skill to reduce this technology disclosed in the Patents-in-Suit to practice.

38. Dr. Glancey paints broad strokes in his description of the manufacturing skills required, describing a POSITA needing to "have at least two years of experience in the manufacture, design and/or the application and use of hoses for various types of fluids". (Glancey, Para 39). As detailed above, for these Patents-in-Suit, a POSITA would have to understand the design, selection and manufacturing of elastomers. Additionally, in order to couple to standard

sources of pressurized fluids, the “first coupler” and the “second coupler” described in the Patents-in-Suit would typically be made from metal in order to not only match the material they are coupling to but also hold up to the rigors of use. Typically, these are made of brass but can also be made of multiple types of metals that are both able to sustain the design requirements and low cost enough to be manufactured in scale for consumer products. The normal method of manufacturing these metal components is casting, which requires pouring metal in a liquid state into a mold, allowing it to cool, and then performing some post processing machining to ensure the interfaces, such as threads on the first coupler or the tube extension taught in both the first and second coupler, are within the design tolerances. As the couplers taught in these patents are likely custom manufactured, the POSITA reducing this to practice would require knowledge of metal casting and metal machining to properly select, design and manufacture the components required for this claimed hose. Dr. Glancey makes no mention of these critical skills in his definition of a POSITA.

39. Should the POSITA choose to use rigid polymers instead of metal for the design of the couplers, then the POSITA would need a depth of knowledge of polymer materials, manufacturing methods such as injection molding, and the types of additives necessary to ensure the rigid polymers perform to the level of the metals they are replacing. Given the embodiments mentioned in the specification, namely use as a garden hose or fire hose, these are both outdoor use cases, the polymers selected would have to be UV stabilized as most polymers degrade with exposure to the sun. Additionally, as plastics tend to have lower yield strengths than metal, many engineers would consider reinforcing the polymers with fiber glass or carbon fiber to boost the yield strength of the material. Dr. Glancey cites none of this necessary knowledge of rigid polymers. Furthermore, once the rigid polymer is selected, a POSITA would have to understand

how to design the injection mold to craft such a component as the “first coupler.” Threads can be added to casted metal parts by machining the part after it is casted. To do so with rigid polymers after molding would be both cost prohibitive as fiber reinforce polymers are both difficult and dangerous to machine. The best method of ensuring the required features, such as the female threads on the “first coupler” or the “male threads on the “second coupler,” would be to design the mold so that these features are molded at the time of injection instead of post molding machining. These features require complex mold design, requiring multiple pieces, intricate pulls, and rotating elements that unscrew from the finished component so that it can be ejected. Dr. Glancey’s broad requirement to understand manufacturing of hoses ignores the critical knowledge of rigid polymers and how to manufacture components with these polymers.

40. The specification describes the assembly process by which the various components are put together. This assembly process details a complex set of steps in which the POSITA would need to design the manufacturing jigs necessary to complete the process as specified below and to do so in a manner that reduces the cost of assembly, potentially through automation.

- “During the assembly of the hose in the preferred embodiment a ten-foot elastic inner tube **14** in its relaxed or contracted condition is inserted into the hollow interior of a 50-foot non-elastic outer tube **12**. The ten-foot inner tube **14** and the 50-foot outer tube **12** and the expansion restrictor sleeve **27** are then all attached and secured together on a coupler at the first end. The ten-foot inner tube is then stretched or expanded through the hollow interior of the outer tube **12** until the elastic inner tube **14** is expanded to 5 times its relaxed or contracted length. At this point in the assembly process the expanded elastic inner tube **14** and the non-elastic outer tube **12** are both clamped down and the inner tube **14** and the outer tube **12** are both 50 feet long. The inner tube **14**, and the outer tube **12** and the expansion restrictor sleeve **27** are then attached and secured together to the coupler at the second end while the hose is still in the expanded condition. As previously stated, the elastic inner tube **14** and the non-elastic outer tube **12** are only attached and secured together at the first end and the second end. The inner tube **14** and the outer tube **12** are unattached, unbonded, unconnected and unsecured along the entire length of the hose between the first end and the second end so as to allow the inner and outer tubes to move relative

to each other between the couplers. This allows the non-elastic outer tube 12 to move freely with respect to the inner tube 14 along the entire length of the hose between the couplers on the first end and the second end.” (‘870 Patent [12, 46 – 13, 5]).

41. The assembly process requires first that the “first coupler,” an expansion restrictor sleeve, and the first end of both the inner tube and the outer tube to be affixed or attached firmly so they cannot be removed from each other. This process likely requires a manufacturing jig to temporarily hold the components together while this securing process is taking place. Manufacturing jigs are devices used to temporarily fixture components together during manufacturing and assembly processes to both reduce the assembly time and to ensure the tolerance requirements are met, such as how much of the inner and outer tubes overlap with the tubular extension in the first coupler. During the next step, where the inner tube is stretched to fifty feet before the second coupler can be attached, the inner tube must be coupled to another jig in such a way that when the second coupler, expansion restrictor sleeve, and the second end of both the inner tube and outer tube are affixed or attached firmly so they cannot be removed from each other. The patents claim a single “securing device” that is used to secure the components of both the first end and the second end. When the components of the first end are secured together, the inner tube is in an unstretched state according to the specification cited above, where the wall thickness of the tube is the greatest. As the inner tube is elongated during the second step, the wall thickness decreases as it is stretched to fifty feet. This creates additional requirements for the stretching tooling. The mechanism by which the inner tube is stretched from 10 feet to 50 ft has to simultaneously ensure a portion of the inner tube at the second end remains unstretched so that the same “securing device” used to secure the components of the first end can be used to secure the components of the second end. As the details of these manufacturing jigs and stretching tooling are not detailed anywhere in the patent, a POSITA would also need to be skilled, under Dr.

Glancey's broad view of being skilled in the "manufacture, design and/or the application and use of hoses for various types of fluids" (Glancey, Para 39), in the design, manufacture and use of the necessary manufacturing jigs and tooling. However, Dr. Glancey's proposed definition is not specific enough to describe how a person with only two years of experience would have such skills.

42. While the Patents-in-Suit do not identify the material used in expansion restrictor sleeve, it is likely made from polymers or metal, given the needs for mass production. Similar to the design of the first and second coupler, an expansion restrictor sleeve made from polymers would likely be made by injection molding, using polymers that have been modified to be more UV resistant. If an expansion restrictor sleeve is made from metal, there are multiple manufacturing methods that could be used to create the tapering shape described in the Patents. A larger tubular piece of metal could have material removed from both the interior of the tube and the exterior of the tube to create the proper profile required. This material removal could be accomplished on a lathe, manual or computer numerically controlled (CNC). There is a specialized high speed manufacturing method called a screw machine, that consists of multiple material remove or material deformation stages, typically used in the manufacturing of screws, that could produce components meeting the profile requirements. Another method would be the use of swaging, or plastically deforming a tube of metal to meet the desired taper profile. Whether polymer or metal, these are specialized manufacturing methods not common nor required in mechanical engineering curriculums but are critical knowledge in reducing these patents to practice. Dr. Glancey fails to address this skill gap in his definition of a POSITA.

43. Claim 1 of the '870 Patent and claim 1 of the '278 Patent require the outer tube to be made of fabric. A typical mechanical engineering curriculum does not include coursework on the design, manufacturer and or use of fabric. Dr. Glancey neglects to mention this critical skillset

required by Claim 1 in his definition of a POSITA. Fabric is generally made by integrating fibers in one of four ways. Other means of manufacturing fabric may be used, but the following methods are the most used. First is weaving fibrous material orthogonal to each other, intertwining weft fibers between repeated lengths of warp fibers. Second is the creation of fabric by knotting a continuous strand of fiber, typically knitting or crocheting. Third is braiding multiple continuous strands in a pattern that resists unraveling, typically used for making rope or cordage. Finally, is felting, in which fibers, such as wool, are agitated together to encourage the fibers to fluff and intertwine in manner not easily reversed, forming a mat of fabric. These methods can be used with natural fibers, polymers or even metals. The material selection has a significant impact on which fabric manufacturing method is used and how the resulting fabric performs in the application taught in these patents. Dr. Glancey's POSITA would be unable to reduce even the first claim to practice because his definition lacks the critical knowledge of fabric.

44. In light of the broad and vague description of Dr. Glancey's POSITA, I propose that a POSITA in connection with the Patents-in-Suit would hold a Bachelor's Degree in Mechanical Engineering or a closely related technical field and would have at least four years of experience in the manufacture, design and/or the application and use of hoses for various types of liquids. This hypothetical person would be capable of performing various design tasks and would understand the basic mechanical and fluid features and operation of expandable and contractible hoses; this hypothetical person would also have at least a basic knowledge of fluid mechanics, solid mechanics, and materials science and engineering as they relate to hoses and how hoses generally function to convey fluids from one place to another. This hypothetical person would also have an understanding of how to design components of both rigid and elastomeric polymers, including the requirements to design for injection molding of rigid polymers, and selection of

elastomers and the design of components utilizing those elastomers. This hypothetical person also requires an understanding of cast metal manufacturing along with post process machining of metal components made with this process. Additionally, this hypothetical person would have to understand how to specify and source fabrics for the manufacturing of the outer hose, made by weaving, knitting, or braiding. Finally, this hypothetical individual would need to understand how to design, manufacture and utilize manufacturing jigs required to secure the components together for scale manufacturing of the hoses.

45. I was at least a POSITA as of the priority date of the Patents-in-Suit (i.e., 2011).

46. My opinions concerning the claim terms of the Patents-in-Suit are from the perspective of a POSITA, as set forth above, at the time of the invention.

IV. THE PATENTS-IN-SUIT

47. Each of the Patents-in-Suit professes to teach a POSITA how to create an expanding hose and a method of creating and using an expanding hose. The first independent claim in all three patents details a hose, constructed by securing an “inner tube” and an “outer tube” to a “coupler.” The “inner tube” is elastic such that it stretches when filled with pressurized fluid, up to six times its original length.

48. The “inner tube” is analogous to the balloons used to create balloon animals. As they are filled with a pressurized fluid, in this case air from the lungs of the balloon artist, these balloons can expand laterally (in diameter) and longitudinally (in length). The balloon artist has to be careful not to over pressurize the balloons with pressurized fluid as the wall may burst from being too thin or the securing knot at the end of the balloon could be destroyed by the pressure. When balloons, like the “inner tube” of this hose, are pressurized and are free to expand laterally and longitudinally, the wall thickness reduces along the length of the pressurized elastic tube. This

thinning of the tube's wall is not always uniform based on variation and defects within the manufacturing of elastic tubes.

49. The primary claim contains two elements purported to keep the elastic "inner tube" from bursting under high pressure—an outer tube and restrictor sleeves. The first claim details a requirement for an "outer tube" that is "secured to" a "first coupler" and a "second coupler" or fittings at both ends of the hose and that slides or moves freely over the "inner tube." This "outer tube" acts as a limitation on the expansion of the "inner tube," both laterally and longitudinally. As the "inner tube" becomes filled with pressurized fluid, it eventually expands until it contacts the "outer tube's" inner diameter. In other words, the "inner tube" expands to the limits of the "outer tube's" inner diameter and beyond, depending on the material of the "outer tube." The Patents-in-Suit teach that the "outer tube" is fabric, which depending on the construction, can stretch laterally and longitudinally. For the hose to function properly, the flexible nature of the fabric "outer tube" would need to be such that the expansion and elongation of the "inner tube" would be limited by the outer tube so that the wall thickness of the pressurized inner tube would be well below the yield or failure point of the material. The "outer tube," when assembled according to the claim, prevents the "inner tube" from bursting when under pressure during normal use.

50. Oddly, all three patents use phrases such as "said inner and outer tubes unsecured between said first and second ends so that said outer tube is not held in frictional contact with said inner tube so that said outer tube can move freely along said inner tube" '870 Claim 1, or "said inner tube is unsecured to said outer tube between said first and second ends so that said outer tube outer tube can move freely over said inner tube" '278 Claim 1, and finally "said flexible inner tube unsecured to said flexible outer tube between said first and second ends so that said flexible outer

tube can move freely over said flexible inner tube.” ‘915 Claim 1. A POSITA would understand all of these phrases to mean the same thing—that the outer tube that is not held in frictional contact (can move freely) on top of the inner tube. Yet for the strain relief benefits of the outer tube to be realized when the inner tube is filled with pressurized fluid, then the outer tube is in frictional contact with the inner tube and prevents the outer tube from moving freely over the elastic inner tube.

51. The Patents-in-Suit also teach that the first end has to be “coupled to” a source of pressurized fluid to be filled with pressurized fluid. In the main embodiment represented in the Patents-in-Suit, this “first coupler” is a threaded fitting (Figs 1, 3, 8) that couples to the source of pressurized fluid. If the coupler is not removably connected to the source of pressurized fluid, then the hose would be attached firmly so it cannot be removed to the source of pressurized fluid. Otherwise, if the couplers were removably connected to the inner and outer tubes, this would reduce the utility of the hose. This “first coupler” is attached firmly so it cannot be removed from the “inner tube” and the “outer tube.” Unlike the description of the coupling of the “first coupler” to the pressurized fluid source being threaded, there is no mention as to how the “first coupler” is “secured” to the inner and outer tubes, other than by a “securing device” (a nonce term). This is important to the claimed hose because methods known to a POSITA for securing a coupler and two tubes, such as clamping or swaging, rely on the materials being secured to be of a uniform thickness. As we established above, the “inner tube” is elastic and as it is pressurized, the tube wall thickness decreases as the pressure increases. This is a dynamic situation that requires either a known securing method or a novel securing device at the first and second ends that teaches the means to maintain a secure connection that is robust and able to adapt to changes in wall thickness. Additionally, if this connection between the “first coupler,” the “inner tube” and the “outer tube”

was merely “coupled,” that is to say, removably connected like the “first coupler” is to the source of pressurized fluid, it would be difficult for an ordinary hose user to consistently and repeatedly couple these three different components, while preserving the ability of the hose to perform as taught because of the dynamic character of the wall thickness of the “inner tube” through successive expansion and contraction cycles.

52. The second end of the claimed hose also has a “coupler.” The first claim also teaches that there is a “flow restrictor” “coupled” with the “second coupler.” Because words used in claims need to maintain the same meaning throughout the claims, this suggests that the “flow restrictor” is removably connected to the “second coupler.”

53. The “flow restrictor” is critical to the operation of the hose as taught. Without the “flow restrictor,” the inner tube may not be sufficiently pressurized to elongate and/or expand during use. If there is no “flow restrictor” such as a nozzle at the second end of the hose, opposite of the first end where the “first coupler” is removably connected to the source of pressurized liquid, the Bernoulli Principle suggests that there would be insufficient pressure drop across the hose for the hose to elongate. While there is a pressure drop along the length of the hose due to head loss, effectively friction between the fluid and the hose itself, this pressure drop does not exert itself on the walls of the “inner tube.” Returning to our balloon analogy above, if the balloon had a hole at one end, it would not inflate. The balloon inflates because the internal pressure is greater than atmospheric pressure, creating a force that pushes on the internal surface of the balloon, hence the units for pressure, pounds per square inch or in the metric system, Newtons per square meter. The elastic nature of the skin of the balloon resists this force, causing the balloon to expand or elongate laterally and longitudinally. A balloon stops expanding when the combination of atmospheric pressure pushing back on the external surface of balloon and the contracting force of the elastic

material of the balloon balance the internal pressure of the balloon. If there was then a sudden opening of the balloon, all of the captured air under pressure would rapidly escape, finding its equilibrium with the atmosphere, resulting in either the deflation or contraction of the balloon or the yield or popping of the balloon material.

54. This claimed hose, during normal use, is like a balloon with openings at both ends. When coupled to the source of pressurized fluid, the “flow restrictor” has to drop the pressure so that the difference between the input pressure from the source and the output pressure at the second end is sufficient to inflate the inner tube. Some balloons are harder to inflate than others, because they have thicker walls, or are made of different materials with varying elastic materials. The “inner tube” of this claimed hose is constrained by the same challenge, where the choice of material, the contracted wall thickness, and its modulus of elasticity are critical to successfully reducing this to practice. Select a material that has extensive hysteresis after being inflated and deflated multiple times and the hose will fail to contract to its original length. Pick a wall thickness that is too thick, and the source pressure will be insufficient to elongate the hose. Should the wall prove to be too thin, then the “inner tube” may burst before reaching the diameter of the “outer tube.” Select a material with a modulus of elasticity that is too large and the hose may not elongate enough for the stated purpose of the claimed hose.

55. Additionally, the design of the “flow restrictor” is critical. The example given in the specification of coupling the hose to a household pressure at 60 psi, with an assumed flow rate of 2.2 gallons per min, and expanded inner tube inner diameter of 0.609 in, would result in a flow velocity of 2.4 ft per sec. The description of a coupled nozzle suggests that device reduces the outlet pressure to 35 psi. Using Bernoulli’s equations, assuming the flow rate is maintained at 2.2 gallons per min, and the outlet pressure is 35 psi, then the flow restrictor diameter would have to

drop to 0.121 in, with a resulting flow velocity of 61.1 ft per sec, almost 25 times faster.

56. The specification suggests that the “flow restrictor” detailed in the figures is separate from “Other types of flow restrictors, such as hose nozzles, sprayers, etc. can also be employed. Anything that controls the release of the liquid exiting the hose can be employed.” (‘870 [11, 1-3]). Nowhere does it teach how the flow restrictor specified differs from a nozzle or what is the target pressure drop generated by that nozzle. Nor does it detail the impacts of narrow flow restrictors on the performance of other attachments to the male end of the hose, such as nozzles or sprayers.

57. Additionally, the language of the method claim on all three patents teach that the “first coupler” is “secured to” the first end of the inner and outer tubes. Similarly, the “second coupler” is “secured to” the second end of the inner and outer tubes. It goes on to teach that the inner and outer tubes are “secured” to “each other” at the first and second ends, and “unsecured” between the first and second ends. This contrasts with the terms used to describe how the first end is coupled to the source of pressurized fluid; “connecting said first coupler to the source of pressurized fluid;” (‘870 Patent Claim 16, ‘278 Patent Claim 15, ‘915 Patent Claim 14). It is interesting that for the language used in both independent claims is consistent with “securing” while the language of how the first coupler is connect to the source of pressurized fluid uses synonyms, “coupling” and “connecting.”

V. RESPONSE TO GLANCEY OPINIONS CONCERNING CLAIM CONSTRUCTION

58. Dr. Glancey believes that the claim terms under consideration do not require a construction because, to his mind, their usage in the patent is “unambiguous and would have all been easily understood by a POSITA at the time of the invention.” (Glancey, para 43).

59. I disagree with this statement. Dr. Glancey fails to explain what the ordinary

meaning of the Disputed Terms is, as understood by a POSITA, taking into consideration the claims, specification, and prosecution history of the Patents-in-Suit. He would have this Court abdicate its role in construing the claims so that every claim term and phrase is used consistently and avoids redundancy.

60. In my analysis below, I demonstrate how the Patents-in-Suit use the Disputed Terms in very specific ways that are not consistent with Dr. Glancey's claim that the Disputed Terms do not require construction.

61. As discussed more fully below, because of the overlapping nature of terms like "secured" and "couple" if the Court were not to construe them, as suggested by Dr. Glancey, this would lead to an inherent ambiguity regarding their meaning and scope in the Patents-in-Suit, even to a POSITA at the time of invention.

62. Furthermore, I illustrate how Dr. Glancey's own analysis generates ambiguity on these terms that are critical in understanding how to reduce this claimed hose to practice. (Glancey, para 43).

63. The GROUP A terms are "secured to," "to couple," and "coupled to." The definitions of these terms are critical to understanding what is being taught by the claims. As the words used in claims are meant to have distinct and important meanings to help those seeking to reduce the claimed hose to practice, these terms cannot have the overlapping meaning suggested by the words' plain and ordinary meaning, as proposed by Dr. Glancey. The following analysis details the distinct meaning of these words as taught by their use and context in the claims themselves, as well as what is taught in the specification.

64. Contrary to what Dr. Glancey argues, the inventor uses the terms "to couple" and "coupled to" throughout the entire patent to represent interfaces where the components of the

interface removably connect to each other. The inventor describes in the specification the coupling of the claimed hose to sources of pressurized fluid, the coupling of one hose to another, even the coupling of a nozzle to the second end of the hose. In each of these uses of “to couple” or “coupled to”, they represent a removable connection. Without these connections being easily removed and replaced by the user, the utility of the claimed hose is defeated. As will be detailed below, the Patents-in-Suit teach that “to couple” and “coupled to” is used only for removable connections.

- a) “It is still further objective of the present invention to provide a hose that can be readily coupled and uncoupled to a source of water such as a faucet on a house.” (‘870 [34-36]).
 - i. The use of “coupled” and “uncoupled” suggests a temporary and reversible connection to the water source, as is common and obvious with garden hoses. A hose “secured to” (i.e., affixed or attached firmly so it cannot be removed from) the faucet would have limited utility to the user in comparison to a hose that couples and uncouples from the home.
- b) “The threaded portion **28** is constructed to receive the male threads **20** and enable coupling of one hose to another” (‘870 [8, 52-54]).
 - i. The coupling of garden hoses is such that it allows two hoses to be removably connected to each other, as enabled by the threaded portions on the male and female couplers.
- c) “Most conventional garden hoses or other hoses are provided with a standard size female coupler or fitting which will engage and couple the hose **10** to the faucet or water outlet” (‘870 [8, 58-61]).
 - i. As mentioned above, the assumed standard hose configuration is of a standard female coupler that removably connects the hose to the faucet or water outlet.
- d) “said first coupler constructed to couple said hose to a source of pressurized liquid;”

(‘870 [15, 12-13]).

- i. Even within the language of Claim 1, the term couple is used to describe removably connecting the hose to a source of pressurized liquid.

e) “a flow restrictor coupled to said second coupler” (‘870 [15, 21]).

- i. Similarly, Claim 1 teaches that a flow restrictor, described as a nozzle or other restrictor earlier in the patent, is coupled to, i.e., removably connected to, a second coupler.

65. Throughout the Patents-in-Suit, the terms “to couple” and “coupled to” are used exclusively to describe connections between interfaces that are removably connected. I disagree with Glancey’s assertion that defining “couple” as “removably connected” unnecessarily limits on the inventor’s language choice. To the contrary, Glancey’s misleading reference to the Webster’s definition of the noun “coupling” (“1. n. a joining together”) (Glancey, para 47-48, citing Webster’s New World Dictionary and Thesaurus) ignores the fact that “coupling” is not used in the claims of the Patents-in-Suit at all and further ignores the extensive use of “to couple” and “coupled to” in the claims of the Patents-in-Suit as a verb.

66. It is the action of removably connecting the interfaces of the hose, to and from a faucet, to and from another hose, that Glancey fails to address in his arguments. Without the specific context and meaning taught by the Patents-in-Suit (i.e., that “to couple” means to removably connect), the claimed hose would be limited in its utility, potentially including permanent attachment to a faucet or other hose. The very utility of the hose of Claim 1 and the method of fluid transport taught in Claim 16 rely on “to couple” and “coupled to” meaning “removably connected.”

67. Similarly, there are numerous dictionary definitions from 2011 or before that are

consistent with construing “to couple” and “coupled to” as meaning “removably connected.” The Color Oxford English Dictionary, 2011 (attached as Exhibit 1) defines the verb definition of couple to be “To connect or combine”. An earlier edition of the Concise Oxford English Dictionary, 2008, (attached as Exhibit 2) defines the state of being coupled to or with as “connect (a railway vehicle or piece of equipment) to another.” An even earlier edition of the Oxford English Dictionary, Second Edition Volume III (1989) (attached as Exhibit 3) defines the verb use of couple with respect to mechanical systems as “to connect (railway carriages) by a coupling.” These definitions are consistent with the proposed definition that “to couple” to be “to removably connect” and “couple to” to mean “removably connected to”. In the Oxford definitions “couple” as a verb is routinely defined as being “connect.” Oxford English (1989) and Oxford Concise (2008) go on to use an example of a removable connection to define couple as a verb, how one railway car can “couple to” or be “removably connected to” another car. Can you imagine the railway industry if rail cars could not be “removably connected to” each other? Rail freight would cease to function as designed as cars would be limited to connect to the trains they are already connected to, requiring freight to be moved between cars rather than uncoupling and recoupling cars between trains. This does not, as Dr. Glancey opines, limit the scope but instead allows a POSITA to distinguish in the claim language the use of “to couple” or “coupled to” from the use of “secured to.” To a POSITA, items using “couple” as its root term, are items designed to removable connected to other items.

68. Dr. Glancey’s reference to extrinsic evidence of definitions for “secure” seem to be bent on obfuscating the distinction between “to couple” and “secure” and would create further ambiguity. This would call into question the choice of the terms within the claims, suggesting that the inventor mistakenly did not draft the claims with sufficient clarity to teach the claimed hose.

Dr. Glancey refers to how Webster's New World Dictionary and Thesaurus "defines the word 'secure' to mean 'to fasten' or 'tighten.'" (Glancey, para 48). Dr. Glancey's incomplete statement mischaracterizes the actual definition and synonyms provided this Webster's reference, which actually states as follows. First, Webster's dictionary definition of "secure" is:

se·cure (si kyoor') **adj.** [*< L *se-*, free from + *cura*, care*] **1** free from fear, care, etc. **2** free from danger, risk, etc.; safe **3** firm, stable, etc. [*make the knot secure*] —**vt.** **-cured', -cur'ing** **1** to make secure; protect **2** to make certain, as with a pledge **3** to make firm, fast, etc. **4** to obtain or bring about —**se·cure'ly** **adv.**

Ex. B to Glancey Decl.

Second, Webster's thesaurus description is:

secure **v.** **1** [*To fasten*] settle, lock, bind; see **FASTEN**, **TIGHTEN** **1**. **2** [*To obtain*] achieve, acquire, grasp; see **GET** **1**.

Id.

69. Dr. Glancey omits any discussion of the most applicable Webster definition of "secure", which is "to make firm, fast, etc." and the most applicable synonyms of "secure" from the Webster's thesaurus, which are "[to fasten] settle, lock, bind".

70. The claims in all three asserted patents mention in claim one that "said inner and outer tubes unsecured between said first and second ends." This differs extensively from the use of "couple" elsewhere in the claims. Here, the inventor uses the term "unsecured" to describe a situation where the inner tube and outer tube are not affixed or firmly attached to each other between the first and second ends. The claims go on to describe this "unsecured" state as "said outer tube is not held in frictional contact with said inner tube so that said outer tube can move freely along said inner tube." ('870 Claim 1), "said outer tube outer tube can move freely over said inner tube" ('278 Claim 1) and "said flexible outer tube can move freely over said flexible inner

“tube” (‘915 Claim 1). This aligns with the proposed definition in terms of NOT “being affixed or attached firmly.”

71. With respect to the term “secured to,” the Patents-in-Suit carefully separate the concepts of securing components together from the notion of removably connecting components or coupling these components. The following examples from the ‘870 Patent show how it teaches that secured components are not meant to be removed from each other.

- i) “FIGS. 7 and 8 illustrate how male and female couplers **16** and **18** respectively are secured to the hose of a preferred embodiment of the present invention.” (‘870 [10, 57-59]).
 - i. If the male and female couplers were removably connected to the hose, the patent fails to teach how that would be accomplished, given the male coupler **16** is an assembly that includes a threaded portion **20**, a mid portion **22**, tubular extension **32**, and a portion **24** onto which are *secured* the inner tube **14**, the outer tube **12**, and the expansion restrictor sleeve **26**. The only description of how the inner tube, outer tube and expansion restrictor sleeve are secured is a securing device **40** on the male coupler. Other than the securing device, methods such as “clamping or swaging” could be used to secure the couplers to the inner tube, outer tube and expansion restrictor sleeve. (‘870 [11, 13-16]). A POSITA would know that these methods would require some portion of the coupler or securing device to be deformed irreversibly. Moreover, the Patents-in-Suit do not teach where that deformation takes place and how it is used to secure the inner tube, outer tube, and expansion restrictor sleeve to the coupler.
 - ii) Within the prosecution history of the ‘870 Patent, the examiner takes issue with the lack of definition of how the couplers are secured to the inner tube, outer

tube, and expansion restrictor sleeve. He cites McDonald, et al as an example that the use of a securing device is obvious at the time of invention.

a. “In regard to the limitation recited in claims 7 and 12, the restrictor sleeves are crimped onto the ends and therefore do not require additional securing means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute for crimping, a securing device that extends around the outer circumference of the hose wherein it is known in the art that a securing ring is an alternative means of securing a restrictor sleeve onto ends of flexible hoses.” – Office Action, dated 9 Feb 2018, para 5, pg 8 (attached hereto as Exhibit 4).

iii) Crimping, like swaging, requires plastic deformation of the components being secured. As well understood by a POSITA, crimping is not a removable connection, as repeated deformation is likely to result in the failure of the connection, especially when the connection is under pressure as in the hose.

72. Accordingly, the claims are clear that the inner and outer tubes must be “secured to” the first end and the second end of the hose. As taught above, this connection is secured when the coupler is secured to all three components, the inner tube, the outer tube and the expansion restrictor sleeve.

- a. “The outer tube is secured to the inner tube only at the first end of the inner and outer tubes and at the second end of the inner and outer tubes.” (‘870 [Abstract, 11]).
- b. “The hose includes an expandable inner tube made from an elastic material and a separate, distinct outer tube made from a non-elastic material, positioned around the outer circumference and length of the inner tube and *secured* to the inner tube only at the first and second end.” ‘870 [7, 5-9]

73. If these connections were removably connected, the patent does not teach how to accomplish this feat with such a complicated assembly of rigid materials and elastic materials that change thickness during use. The patent mentions “clamping and swaging” as methods “to secure

the male coupler to the inner tube 14, the outer tube 12, and the sleeve 26.” (‘870 [11, 14-16]). A POSITA would readily understand that such methods are not removable connections.

74. For example, swaging requires the components being swaged to deform plastically, not elastically, in order to maintain a seal during use. The most common use of swaging is with copper pipe for household plumbing. The soft copper plastically deforms, create a larger diameter outer pipe for the inner pipe to be joined to. These swage joints require soldering to seal the joint against the pressure of the liquid inside. This results in a secure joint where the two pipes are “affixed” and “cannot be removed.”

75. Hose clamps are another common method of connecting hoses for fluid transport. Most common are the type where a screw head is connected to a worm gear that then tightens or loosens a band of stainless steel around the pipes and/or hoses being secured. Hose clamps of this variety are meant to be permanent attachments and require specific tools to loosen the clamp. They are not designed for repeated coupling and uncoupling of components but for initial securing of components intended only to be separated when extensive repair is required. These clamps tighten around the outside of the two hoses and/or pipes being connected. Because the clamping force is determined by the interior diameter of the clamp once it is in place, if the wall thickness of an elastic hose being clamped changes substantially, then there is a significant chance the joint will fail.

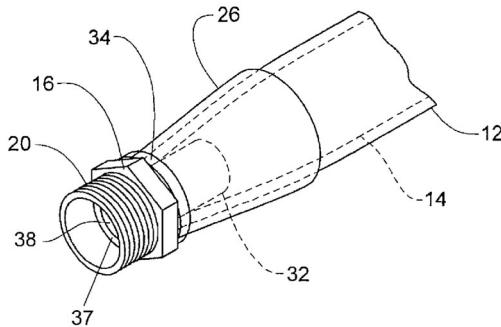
76. This invention requires the inner tube to elastically deform as it becomes filled with water (i.e., pressurized fluid). This deformation manifests as an expansion both laterally and longitudinally that results in a substantial thinning of the wall of the elastic inner tube. In the example embodiment detailed in the specification, the unpressurized wall thickness of the elastic inner tube is 0.125 inches. (‘870 Patent [14, 2]). The specification also provides a sample wall

thickness in the expanded state of 0.031 inches. ('870 Patent [13, 54-55]). At full expansion, the wall thickness of the elastic inner tube is less than 25% of the original unpressurized wall thickness. Using a traditional stainless steel hose clamp, there is a risk that over clamping is likely to cut into the inner tube at the interface of the clamped and unclamped sections of the inner elastic tube, resulting in a failure of the joint. If the hose clamp is undertightened, then the elastic inner hose, when stretched to less than 25% of the original wall thickness, is likely to be pulled out of the clamp, resulting in the unsecuring of the inner tube, the outer tube, and the coupler associated with that end of the hose. As can be seen from these examples of swaging and clamping, it is imperative that this ambiguity needs to be resolved by defining “secured” as “affixed or attached firmly so it cannot be removed.”

- a. “The outer tube is unattached, unconnected, unbonded, and unsecured to the inner tube along the entire length of the inner tube, between the first end and the second end, so that the outer tube can move freely with respect to the inner tube along the entire length of the inner tube between the first end and the second end.” ('870 [7, 10-16]).
- b. As we have already shown that “to couple” means “to removably connect”, the use of unconnected could also be read as “uncoupled.” Using “unsecured” in the same sentence provide additional support that the inventor recognizes that “secure” and “couple” mean something different.
- c. Figures 7 and 8, which depict the connection between the tubes and the couplers, are described as follows:
 - i. “FIG. 7 is a perspective view of a male coupler secured to an end of the hose of the present invention when the hose is in its extended condition; and FIG. 8 is a perspective view of a female coupler secured to an end of the hose of the present invention when the hose is in its contracted condition.” ('870 [7, 62-67]).
 - ii. “FIGS. 7 and 8 illustrate how male and female couplers **16** and **18** respectively are secured to the hose of a preferred embodiment of the present invention.”

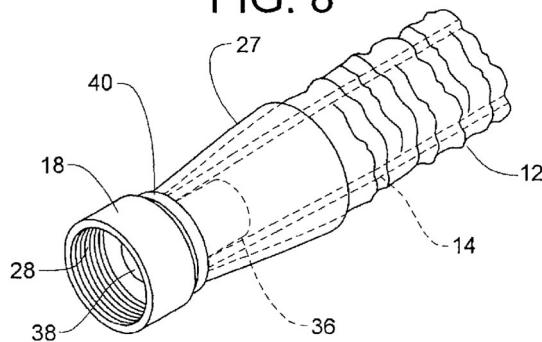
(‘870 [10, 57-59]).

FIG. 7



d. As can be seen in FIG. 7, the only component that supports removable connections are the threads **20** on the male coupler. We are taught that this is to “enable coupling of one hose to another.” (‘870 Patent [8, 54]). The element assigned the role of securing the tubular extension of the male coupler to the end of the inner and outer tubes is a securing device **34**: “a securing device encompasses the outer sleeve **26**, the outer tube **12**, and the inner tube **14** and secures these elements to the tubular extension **34**.” (‘870 Patent [10, 65-67]). There are no features visible on the securing device **34** that would suggest how it secures the male coupler to the tubes.

FIG. 8



e. Similarly, in FIG. 8, the female coupler has visible threads **28** “constructed to couple to a faucet or water outlet on the exterior or interior of a house or residence.”

(‘870 Patent [8, 55-57]). It goes on to teach that “Most water faucets on homes or residences are provided with a standard size male coupler or fitting. Most conventional garden hoses or other hoses are provided with a standard size female coupler or fitting that will engage and couple the hose **10** to the faucet or water outlet.” (‘870 Patent [8, 55-57]). The threads **28** confirm that this is a removable connection.

- f. Like the male coupler, the tubular extension of the female coupler is secured to the inner and outer tubes with a securing device **40** that “encompasses the outer sleeve **27**, the outer tube **12**, and the inner tube **14** and secures these elements to the tubular extension **36**.” (‘870 Patent [10, 65-67]). There are no features visible on the securing device **40** that would suggest how it secures the female coupler to the hose.
- g. In both FIGS. 7 and 8, there is a securing device that secures the male coupler and female coupler, respectively to their respective ends of the hose. To function as designed, the securing device must “affix or attach firmly” the couplers to the hose so they “cannot be removed” from the hose.

77. Similarly, there are numerous dictionary definitions from 2011 or before that are consistent with construing “secured to” as “affixed or attached firmly so it cannot be removed from”. Returning to the Color Oxford Dictionary, 2011 (Exhibit 1), the verb form of “secure” is defined as “to firmly fix or fasten” and its adjective form extends to be defined as “fixed or fastened so as to not give way, become loose.” Concise Oxford English Dictionary, 2008 (Exhibit 2) uses the same adjective definition as “Fixed or fastened so as to not give way, become loose, or be lost.” The verb form is defined using the adjective form as “to fix or fasten securely.” In the Oxford English Dictionary, Second Edition Volume III, 1989 (Exhibit 3), the adjective form “secured” is

defined as “tied, joined, linked, or associated together in pairs” and/or “In senses of the verb: assured; firmly fastened; rendered safe.” The verb form, “secure” echoes the definition in other sources as “to make fast or firm.”

78. Each of these definitions aligns with the usage of “secured” within the claims to “affixed or attached firmly so it cannot be removed.” This is true when the first coupler, the first ends of the inner tube and outer tube are secured together. These components are attached firmly to each other so they cannot be removed from each other.

79. Unlike the ambiguity created by Dr. Glancey’s approach, Winston’s proposed definition is also consistent when the “securing device” is described as the means to ensure these components, once attached firmly to each other, they cannot be removed. Even the antonym use of “unsecured” within the claims describing the state that in the unpressurized state, the outer tube is not “secured” to the inner tube. It is not “affixed” to the inner tube, nor is it “attached firmly.”

80. According, Dr. Glancey’s assertion that “secured to” does not need to be construed is misplaced. The proper construction, consistent with the claims, the specification, the prosecution history, and the extrinsic evidence is “affixed or attached firmly so it cannot be removed from”.

81. In summary, the proper construction of the Group A terms is as follows:

- “**secured to**” – “affixed or attached firmly so it cannot be removed from”;
- “**to couple**” – “to removably connect”; and
- “**couple to**” – “removably connected to”.

GROUP B:

“said inner and outer tubes unsecured between said first and second ends so that said outer tube is not held in frictional contact with said inner tube so that said outer tube can move freely along said inner tube”

“said inner tube is unsecured to said outer tube between said first and second ends so that said outer tube can move freely over said inner tube”

“said flexible inner tube unsecured to said flexible outer tube between said first and second ends so that said flexible outer tube can move freely over said flexible inner tube”

82. Dr. Glancey erroneously suggests that these phrases do not require construction and that each phrase is defined by the language of the claim itself. The language in Claim 1 in all three Patents-in-suit make explicit use of “couple” and “secure” in different context. In the context of these phrases, the inventor uses the antonym of secure, “unsecured” to describe the relationship between the inner tube and outer tube between the first and second ends. This aligns with the proposed construction of “secure” as “affixed or attached firmly so it cannot be removed.” This section of claims is teaching that prior to the “introduction of a flow of pressurized liquid through said first coupler into said inner tube” (‘870 Patent [15, 22-23]) the outer tube, which is longer at this pre-pressurized state than the inner tube, is able to slide freely along the inner tube. This is possible because:

“the 50-foot non-elastic outer tube **12** has many folds that are compressed and gathered around the 10-foot contracted and relaxed inner tube **14**, the folded, compressed and gathered 50-foot outer tube **12** measures the same 10-foot length as the 10-foot contracted inner tube **12**.” (‘870 Patent [13, 22-27]).

83. The gathering is possible because the diameter of the outer tube is 0.68 inches (‘870 Patent [13, 52]) and the diameter of the inner tube in the unexpanded state is 0.375 inches (‘870 Patent [14, 1]). The 0.305 inch difference in diameters results in a maximum gap between inner and outer tubes in the unexpanded state of 0.1525 inches. Even considering the smaller diameter of gather sections, there is still sufficient gaps between the inner and outer tubes to allow the outer tube to move freely along the inner tube in an unsecured manner. The use of the term “unsecured” here aligns with the view that the outer tube is NOT “affixed” NOR “attached firmly” to the inner

tube “so it cannot be removed.”

84. The specification teaches that:

“the radial expansion of the inner tube 14 is constrained by the maximum diameter of the non-elastic outer tube 12. (‘870 Patent [8, 32-33]) This suggests that when the inner tube is fully expanded, then it is in contact with the outer tube, in fact, actually constrained in its expansion by the inner diameter of the outer tube. For the constraint to function properly, the outer tube is required to be in frictional contact along the entire length of the tube. We are also taught that “since the outer tube 12 is non-elastic, the length and width of the outer tube 12 determines the length and width of the hose 10 in its expanded condition.” (‘870 Patent [9, 47-50])

85. Together, this suggests that in the expanded state, the outer tube is unable to move freely along the length of the inner tube because it is both laterally constrained by the maximum diameter of the outer tube being pressed upon by the expanded inner tube and longitudinally constrained by the maximum length of the outer tube prohibiting the inner tube from expanding further longitudinally.

86. This is further supported in the specification in the description of the assembly process:

“when the stretched and extended elastic inner tube 14 contracts from its expanded length, the unattached, unbonded, unconnected and unsecured soft fabric non-elastic outer tube 12 is contracted by the couplers pulling together, as this happens, the outer fabric also catches on the rubbery elastic inner tube 14 material causing the outer tube 12 to become folded, compressed and gathered relatively evenly around the outside circumference along the entire length of the contracted inner tube 14.” (‘870 Patent [13, 12-21]).

87. When the hose is contracting during depressurization, the inner tube starts to shrink laterally and longitudinally, the surface friction of the elastic inner tube is in frictional contact with the outer tube, causing the outer tube to gather and reduce its apparent length to match the contracted inner tube in a uniform manner. During the time of contraction, there can still be free movement of the outer tube over the inner tube as the inner diameter of the outer tube is larger than that of the shrinking inner tube. Contact is only made at the gathers in the outer tube and the

contact friction can be easily overcome to allow for free movement.

88. The claim language itself and the details provided by the specification teach that the use of “unsecured” to describe the ability of the outer tube to move freely along the inner tube in an unpressurized state is consistent with the antonym of the proposed construction, “affixed or attached firmly so it cannot be removed.”

89. The use of “unsecured” in Group B is also consistent with the various Oxford definitions of “secure” being used as an adjective, such the Concise Oxford English Dictionary, 2008, (Exhibit 2), “Fixed or fastened so as to not give way, become loose, or be lost.” The antonym definition would support the need for the outer tube to move freely, or loose, along the inner tube, to have the outer tube, between the first and second ends, to be unfixed or unfastened from the inner tube.

90. Dr. Glancey’s failure to provide a construction for Group B highlights the confusing and overlapping nature of how he extrinsically defines “couple to”, “to couple” and “secured to”, defining “secure” as “to fasten” or “tighten” (Glancey, para 48). Using the antonym here out mean that the outer tube is “unfastened” or “untighten” to the inner tube. To a POSITA, even with Dr. Glancey’s broad and shallow description, “unfastening” would imply the use of a fastener component which is not described or taught in the patent. Similarly, the use of “untighten” suggest the use of rotationally constricting fasteners such as nuts and bolts or screws, or the common stainless steel hose clamps mentioned earlier. Not only as components that would support Dr. Glancey’s definition of “secure” not present, but the inclusion of such components would impede the normal use of said hose, by requiring users to unfasten or untighten the elements keeping the outer tube from moving freely along the inner tube in the unexpanded state.

91. Accordingly, the proper constructions of the Group B disputed terms are as follows:

- “**said inner and outer tubes unsecured between said first and second ends so that said outer tube is not held in frictional contact with said inner tube so that said outer tube can move freely along said inner tube**” – “the inner and outer tubes are not affixed or attached firmly except at their first and second ends so that the outer tube can move freely along the inner tube between the couplers”;
- “**said inner tube is unsecured to said outer tube between said first and second ends so that said outer tube can move freely over said inner tube**” – “the inner tube is not affixed or attached firmly to the outer tube except at their first and second ends so that the outer tube can move freely along the inner tube between the couplers”; and
- “**said flexible inner tube unsecured to said flexible outer tube between said first and second ends so that said flexible outer tube can move freely over said flexible inner tube**” – “the flexible inner tube is not affixed or attached firmly to the flexible outer tube except at their first and second ends so that the flexible outer tube can move freely over the flexible inner tube”

GROUP C:

“a first restrictor sleeve secured to said first end of said inner and said outer tubes” / “a first restrictor sleeve secured to said first end of said flexible inner tube and said flexible outer tube”

“a second restrictor sleeve secured to said second end of said inner and said outer tubes” / “a second restrictor sleeve secured to said second end of said flexible inner tube and said flexible outer tube”

92. Similar to Group B, Dr. Glancey refuses to propose a construction for the phrases in Group C. Dr. Glancey focuses his analysis on how the specification defines the “restrictor sleeve” and even aligns with the proposed language when he says the “restrictor sleeves” are “component or sleeve that serves to restrict the expansion of the inner tube.” (Dr. Glancey, para 55). He goes on to say that this is the meaning that a POSITA about ascribe to it but recall that Dr. Glancey’s definition of a POSITA is broad and shallow. Given only two years of experience, would this hypothetical person assume this lack of specificity in the claim is the same as the “expansion restrictor sleeve” used throughout the specification (*see, e.g.*, ‘870 Patent [8, 47-49]) or ascribe other forms of restriction to this sleeve? Could it be a flow restriction sleeve, designed to modify the pressure profile during use? Could it be a tamper restriction sleeve designed to keep

the consumer from unduly modifying the hose and impacting its performance? Dr. Glancey provides essentially no explanation on what the full scope of a “restrictor sleeve” is from the perspective of a POSITA.

93. Additionally, by arguing that the Group C terms or phrases “do not require a construction,” Dr. Glancey falls into the same dilemma addressed above regarding the so-called plain and ordinary meaning of the term “secured” as it appears in the Group C phrases (Dr. Glancey, para 55), because as discussed above (e.g., paragraphs 53, 55, and 82), the plain meaning of “secured” overlaps with “couple.” To overcome these problems, the Group C phrases clearly use the term “secured” in the same context as Winston’s proposed construction of “secured,” namely “affixed or attached firmly so it cannot be removed from” (which must be understood as distinct from the proper construction of the word “couple” as used in the claims, i.e., “to couple” means “to removably connect” and “couple to” means “removably connected to.”

94. As mentioned in paragraph 66 above, there is nothing in the specification or the claims that teaches how a “restrictor sleeve” can be “removably connected” to the ends of the inner and outer tubes. The claims teaching the use of the “restrictor sleeves” are dependent claims, suggesting that there are embodiments of the hose where the restrictor sleeves are not included. Elsewhere in the specification we are also taught that “the male coupler **16** includes a threaded portion **20**, a mid-portion **22**, and a portion **24** onto which are secured the inner tube **14**, the outer tube **12**, and an expansion restrictor sleeve **26**.” (‘870 Patent [8, 44-48]). The equivalent teaching exists for the female coupler. Nothing in the specification or claims suggest that the “restrictor sleeve” can be “removably connected” to the inner or outer tubes. Instead, because the “restrictor sleeve” is “secured” to the tubes, the proper construction should reflect that the “restrictor sleeve” is “affixed or attached firmly so it cannot be removed” from the ends of the tubes.

95. Dr. Glancey fails to resolve the ambiguity in the plain and ordinary meaning of “secured” as used in the Group C terms/phrases. However, the specific use of “secured” in the claims teaches that “a first restrictor sleeve secured to said first end of said inner and said outer tubes” (‘870 Patent and ‘278 Patent, Claim 5) means a “device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the first end of the inner tube and the first end of the outer tube.” Similarly, in the ‘915 where Claim 4 teaches “a first restrictor sleeve secured to said first end of said flexible inner tube and said flexible outer tube”, it means “a device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the first end of the flexible inner tube and the first end of the flexible outer tube.”

96. The same logic applies to the similar teaching regarding the second “restrictor sleeve” is “secured” to the second end of the “inner tube and outer tube.” In the ‘870 Patent and ‘278 Patent, Claim 5 teaches “a second restrictor sleeve secured to said second end of said inner and said outer tubes”, again describing on the second end “a device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the second end of the inner tube and the second end of the outer tube.” The ‘915 Patent adds the word “flexible” to the inner and outer tubes, such that “a second restrictor sleeve secured to said second end of said flexible inner tube and said flexible outer tube” means “a device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the second end of the flexible inner tube and the second end of the flexible outer tube.” The proposed constructions are consistent with the teaching throughout the patent, that in order for the hose to be of utility, “secure” is properly defined as “affixed or attached firmly so it cannot be removed.”

97. The use of “secured” in Group C is also consistent with the various Oxford

definitions of “secure” being used as a verb, such the Color Oxford English Dictionary, 2011, (Exhibit 3), “to firmly fix or fasten.” The “restrictor sleeve” needs to be firmly fixed or fastened to the first and second ends or else its stated function to restrict the expansion of the inner tube at the point where it is secured to the outer tube and the coupler would not be fulfilled. If it was not firmly fastened to the first and/or second ends of the hose and slid into a position in between the first and second ends, then during pressurization, a stress concentration at the point where the inner hose, outer hose and coupler are secured together would like result in a catastrophic failure of the inner tube, defeating the utility of the hose as a fluid transport device.

98. As such, the proper constructions for Group C are:

- **“a first restrictor sleeve secured to said first end of said inner and said outer tubes”**
 - “device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the first end of the inner tube and the first end of the outer tube”
- **“a first restrictor sleeve secured to said first end of said flexible inner tube and said flexible outer tube”** – “a device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the first end of the flexible inner tube and the first end of the flexible outer tube”
- **“a second restrictor sleeve secured to said second end of said inner and said outer tubes”** - “a device that restricts the expansion of the inner tube and is affixed or attached firmly so it cannot be removed from the second end of the inner tube and the second end of the outer tube”
- **“a second restrictor sleeve secured to said second end of said said flexible inner tube and said flexible outer tube”** - “a device that restricts the expansion of the inner tube

and is affixed or attached firmly so it cannot be removed from the second end of the flexible inner tube and the second end of the flexible outer tube”

GROUP D:

“a first securing device securing said first restrictor sleeve, said outer tube, and said inner tube to said first coupler” / “a first securing device securing said first restrictor sleeve, said flexible outer tube, and said flexible inner tube to said first coupler”

“a second securing device securing said another expansion restrictor sleeve, said outer tube, and said inner tube to said second coupler” / “a second securing device securing said second expansion restrictor sleeve, said flexible outer tube, and said flexible inner tube to said second coupler”

99. Group D examines the construction of Dependent Claim 7 in the ‘870 Patent and the ‘278 Patent, and Dependent Claim 6 in the ‘915 Patent. Dr. Glancey opines that “securing device” is not a nonce word as used in the Patents-in-suit. In Dr. Glancey’s attempt to describe what a “securing device” could be to a POSITA, he contradicts himself. Dr. Glancey speculates that “the specification specifically contemplates this broad scope by explaining various *other* [emphasis his] types of devices may be used to secure” (Glancey, Para 60) the components at each end of the hose, suggesting that the other methods of securing components mentioned in the specification, “such as clamping and swaging can also be employed to secure the mail coupler to the inner tube 14 , the outer tube 12, and the sleeve 26.”. (‘870 Patent [11, 14-16]). The specification suggests that the “securing device” is unique and distinct from these other types of connections. Though Dr. Glancey goes on to assert that these ““securing devices’ could be any known securing device,” in contradiction to the explicit teaching of the patent away from common connections such as swaging and clamping. (Glancey, Para 60). Furthermore, when Dr. Glancey expounds on the possible “securing devices” that would be clear to a POSITA, the list includes “a screw, a nut and bolt, a securing ring, a clamp, a crimp, a swage fitting” (Glancey, Para 65), he

ignores the fact that patent specifically teaches away from a “securing device” as including clamping and swaging.

100. Additionally, of the examples provided, most would be impractical or conflict with what is taught in the patent. For example, the use of screws would imply puncturing the wall of the inner and outer tube to secure it to the coupler, a securing method that would likely result in leaks and not consistently secure the components together uniformly but instead create localized secured zones at the screws but allow pressurized fluid to escape where there were not screws. Additionally, nothing in the specification nor the claims teach the uses of screws as the “securing” device. In other aspects, where threads are used “to couple” components, the threads are detailed and specified, suggesting that if the securing device was a similar component, it would be detailed accordingly. Using a nut and bolt, as Dr. Glancey’s second example suggests falls into similar ambiguous territory as the screw, where it is a challenge for the novice engineer described by Dr. Glancey’s description of a POSITA to even conceive, based on the specification, drawings and claims, how to use nuts and bolts as the securing device.

101. Like screws, nuts and bolts are used typically for attached two or more components together using a preexisting hole, where both the nut and the head of the bolt are accessible for tightening operations. Putting holes in the outer tube and inner tube would create stress concentrations and would increase the likelihood of the end hose failing under pressure. Additionally, the features required to fixture the nut during tightening and/or provide a means for the threads of the nut to mate are both not mentioned in the specification, drawings or claims, and the affordances for these features would likely impede the flow of liquid within the inner tube.

102. Dr. Glancey even uses the term “securing ring” to describe a “securing device,” (Glancey, Para 65), conflating it with a retaining ring, which is used in mechanical assemblies to

restrict translational motion, such as the mounting of bearings in a sleeve. Retaining rings are effectively specially designed radial springs that are installed in a compressed state, shrinking their overall diameter, and then fitted into a retaining slot, where they can return to a relaxed or partially deformed state, creating a barrier to motion within the assembly. Retaining rings apply spring force radially outward whereas the “securing device” necessary for this hose described in the Patents-in-suit requires force to be directed radially inward to effectively seal the outer tube and the inner tube to the coupler as taught. Frankly, it is not clear how Dr. Glancey concludes that a POSITA understand a “securing device” to include a “securing ring.”

103. According to the specification, a “securing device” is different from “other types of connections, such as clamping and swaging” that can be used to secure the coupler to the tube. (‘870 [11, 13-18]). As mentioned in the analysis above, swaging requires the plastic deformation of the tubes being swaged and then the addition of further sealant between the two tubes being swaged together in the joint. As taught in the Patents-in-Suit, the inner tube cannot plastically deform. Furthermore, the traditional sealant used in swaging is a solder render in a liquids state for swaging using a source of tremendous heat, such as a blow torch. The specified materials of the inner and outer tubes in the Patents-in-Suit would not survive the soldering process.

104. Dr. Glancey also mentions crimping, which is a type of irreversible process by which the components being connected are encompassed by an additional material that is mechanically deformed to provide clamping force even after the tool used to mechanically deform the crimp is removed. This method of attaching components is routinely used in electrical connections, as well as for the construction of hoses, including garden hoses, air hoses and hydraulic hoses. The Patents-in-Suit claim the securing device is novel in how it attaches the inner tube and the outer tube to the couplers at both the first end and the second end. Yet we are never

taught how this “securing device” differs from what is common in the field.

105. Dr. Glancey persists in his view that “securing device” is not a nonce term. He goes on to contradict his own analysis of what constitutes a “securing device.” In his examples of the methods he claims are readily apparent to a POSITA, he either cites attachment methods specifically taught away from in the Patents-in-Suit (clamping and swaging), lists options that would be so impractical as to be useless in the assembly of the hose (screws, nuts and bolts), creates his own nonce term (securing ring) or cites a decisively not novel narrow type of clamping called crimping. Not only has crimping been used for generations of hoses across multiple markets to attach couplers to tubes, but crimping also aligns with Winston’s definition of “secured.” Crimping is a non-reversible clamping technology requiring specially tools that allows the user to “affix or attach firmly so it cannot be removed.”

106. The use of “securing” in Group D is also consistent with the various Oxford definitions of “secure” being used as an adjective, such the Concise Oxford English Dictionary, 2008, (Exhibit 2), “Fixed or fastened so as to not give way, become loose, or be lost.” Within the context of these claims, the “securing device” is used to “fasten” the “restrictor sleeve”, the “coupler,” the “inner tube,” and the “outer tube” together “so as to not give way, become loose.” If the “securing device” did not perform the function as defined here, then the hose utility would be defeated.

107. Accordingly, the proper constructions of the Group D disputed terms are as follows:

- **“a first securing device securing said first restrictor sleeve, said outer tube, and said inner tube to said first coupler”** – “a device encompassing and affixing or attaching firmly the first restrictor sleeve, the first end of the outer tube, and the first end of the inner tube to the first coupler so they cannot be removed”
- **“a first securing device securing said first restrictor sleeve, said flexible outer tube, and said flexible inner tube to said first coupler”** – “a device encompassing and affixing or attaching firmly the first restrictor sleeve, the first end of the outer tube, and

the first end of the inner tube to the first coupler so they cannot be removed”

- **“a second securing device securing said another expansion restrictor sleeve, said outer tube, and said inner tube to said second coupler”** – “a device encompassing and affixing or attaching firmly the second restrictor sleeve, the second end of the outer tube, and the second end of the inner tube to the second coupler so they cannot be removed”
- **“a second securing device securing said second expansion restrictor sleeve, said flexible outer tube, and said flexible inner tube to said second coupler”** – “a device encompassing and affixing or attaching firmly the second restrictor sleeve, the second end of the outer tube, and the second end of the inner tube to the second coupler so they cannot be removed”

108. In the alternative, I understand that Winston contends that “securing device” is a nonce term that is governed by 35 U.S.C. § 112(f) (or pre-AIA 35 U.S.C. § 112 sixth paragraph). I agree that “securing device” is merely a generic placeholder that is followed by functional language in the claims. *See, e.g.*, ‘870, Claim 7 (“a first securing device securing said first restrictor sleeve, said outer tube, and said inner tube to said first coupler, and a second securing device securing said another expansion restrictor sleeve, said outer tube, and said inner tube to said second coupler”). Accordingly, by identifying the corresponding structure described in the written description of the Patents-in-Suit, we can construe the proper scope of “securing device.”

109. In reviewing the claims, the claims reciting a “securing device” do not provide any structure besides a “device” that is used to “secure” the “inner tube,” the “outer tube,” and the “restrictor sleeve” to the “couplers.” In other words, the claims use a generic placeholder to accomplish functional language but does not provide any structure or additional context as to how the generic placeholder accomplishes the recited functions. Therefore, I believe “securing device” should be interpreted under 35 U.S.C. § 112(f) (or pre-AIA § 112 sixth paragraph).

110. Dr. Glancey renders two opinions: first, he opined that “securing device” is not a nonce term that should be construed under 35 U.S.C. § 112, sixth paragraph (Glancey, Para 62-

69); second, he states that even if “securing device” is construed as a mean-plus-function provision, Dr. Glancey states that “securing device” means the following structure: “at least securing rings 34 and 40” as well as “any number of appropriate and well-known securing devices.” (Glancey, Para 70-74).

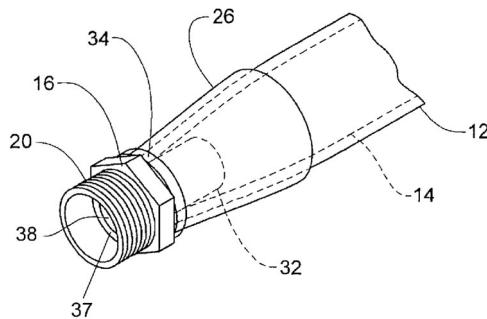
111. Dr. Glancey repeats his argument that the claims and specification of the Patents-in-Suit sufficiently define the meaning of “securing device” and that a POSITA could infer numerous meanings for “securing device” including “a screw, a nut and bolt, a securing ring, a clamp, a crimp, a swage fitting, etc.” (Glancey, Para 65). In my analysis of the proposed constructions in Group D, I detail how these potential interpretations of “securing device” using his improper definition of a POSITA, are not feasible for the task of securing the “restrictor sleeve,” the “inner tube,” and the “outer tube” to the “coupler,” are specifically taught away from by the specification, or are interpreting a nonce term, “securing device” as another nonce term, “securing ring.” Even “crimping,” which is a type of irreversible “clamping,” has been used in hose manufacturing for generations, suggesting both that the specification teaches away from the “securing device” being a crimping device as it is a type of clamping and that crimping itself is not novel within the context of this hose.

112. Dr. Glancey fails to demonstrate how a POSITA would glean sufficient structure for performing the function of the “securing device.” Dr. Glancey’s analysis raises more questions than it answers as to how a POSITA would accomplish the function of the “securing device.” His extensive list of examples of a “securing device” would simply not work and highlights the failure of the claims and specifications to sufficiently describe the structure to perform the function of securing the “restrictor sleeve,” the “inner tube,” and the “outer tube” to the “coupler.”

113. Dr. Glancey neglects to accept the narrow structure taught in the patent with regard

to the “securing device.” The only structure for the “securing device” taught in the Patents-in-suit appears in FIGS. 7 & 8:

FIG. 7

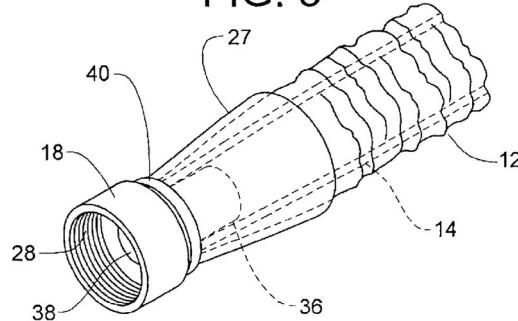


114. FIG. 7 illustrates the “male coupler” 16 secured to the “second restrictor sleeve” 26, and then “second end” of the “outer tube” 12, the “inner tube” 14 by the “securing device” 34 that encompasses the “second restrictor sleeve” 26, and then “second end” of the “outer tube” 12, the “inner tube” 14. As can be seen from the drawing, the “securing device” seems to be a ring of unspecified material, roughly half the width of the hexagonal portion of the “male coupler” 16, that encompasses the “second restrictor sleeve” 26, and then “second end” of the “outer tube” 12, the “inner tube” 14. The “male coupler” 16 extends into the interior of the “second restrictor sleeve” 26, and then “second end” of the “outer tube” 12, the “inner tube” 14. Though not explicitly taught how this structure, “securing device” 34, accomplishes the function, evidently this apparent ring of unspecified material somehow attaches the “second restrictor sleeve” 26, and then “second end” of the “outer tube” 12, the “inner tube” 14 to the “tubular extension” 34 as the means of securing these components to the “male coupler” 16.

115. The specification mentions the “securing device” used on the female coupler only twice in the specification. First, detailing that “A securing device 34 encompasses the outer sleeve 26, the outer tube 12, and the inner tube 14 and secures these elements to the tubular extension

34.” (‘870 Patent [10, 65-67]). Secondly, to use the “securing device” to describe the location of the function of another element, “the expansion restrictor sleeve 26 is restricting the expansion of the inner and outer tubes at the junction of the securing device 34.” (‘870 Patent [11, 7-9]). Nowhere else is the “securing device” used to attach the “restrictor sleeve”, the “inner tube” and the “outer tube” to the “male coupler” until the broad use of “securing devices” in the claims of the Patents-in-Suit.

FIG. 8



116. FIG. 8 illustrates the “female coupler” 18 secured to the “first restrictor sleeve” 27, and then “first end” of the “outer tube” 12, the “inner tube” 14 by the “securing device” 40 that encompasses the “first restrictor sleeve” 27, and then “first end” of the “outer tube” 12, the “inner tube” 14. As can be seen from the drawing, the “securing device” seems to be a ring of unspecified material, roughly one-fifth the width of the exterior width of the “threaded portion” 28 of the “female coupler” 18, that encompasses the “first restrictor sleeve” 27, and then “first end” of the “outer tube” 12, the “inner tube” 14. The “female coupler” 18 extends into the interior of the “first restrictor sleeve” 26, and then “first end” of the “outer tube” 12, the “inner tube” 14. Though not explicitly taught how this structure, “securing device” 40, accomplishes the function, evidently this apparent ring of material somehow attaches the “first restrictor sleeve” 27, and then “first end” of the “outer tube” 12, the “inner tube” 14 to the “tubular extension” 36 as the means

of securing these components to the “female coupler” **18**.

117. The specification goes on to describe that the “securing device **40** encompasses the outer sleeve **27**, the outer tube **12**, and the inner tube **14** and secures these elements to the tubular extension **36**.” (‘870 Patent [11, 31-33]). The only other time the “securing device” on the “female coupler” is mentioned that in the unexpanded state, “the sleeve **27** is not restricting expansion of the inner and outer tubes at the junction of the securing device **40**.” (‘870 Patent [11, 37-39]). Here, the “securing device” is used only to mark the location where expansion is not being restricted. There is no other mention of the “securing device” on the female coupler anywhere else in the Patents-in-Suit other than when the broad nonce term “securing device” is used in the claims.

FIG. 1

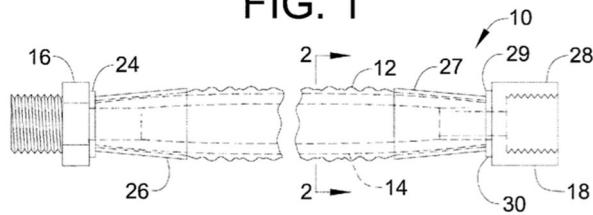
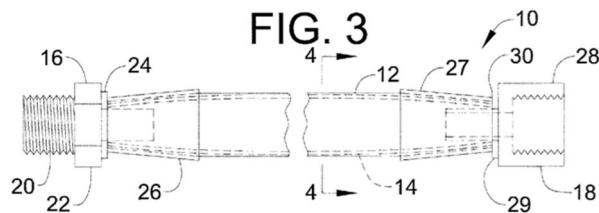


FIG. 3



118. FIGS. 1 & 3, which show the “male coupler” and “female coupler” in both the expanded and contracted state of the hose, give no indication of how the “inner tube” and the “outer tube” are secured to the “couplers” nor how the “restrictor sleeve,” the “inner tube” and the “outer tube” all three are secured to the couplers. There is no “securing device” identified in these preferred embodiments illustrated. Nothing matches the ring shown as “securing device” **34 & 40** in FIGS 7 & 8. Item **24** in FIGS. 1 & 3 is labeled as a “portion” of unknown structure or function

as part of the “male coupler **16** includes a threaded portion **20**, a mid-portion **22**, and a portion **24** onto which are secured the inner tube **14**, the outer tube **12**, and an expansion restrictor sleeve **26.”** (’870 Patent [8, 44-48]). The other potential element labeled in FIGS. 1 & 3 is **30**, which is defined nowhere in the specification.

119. I agree with Winston Products’ assertion that “securing device” is a nonce term, one that is ill defined in the Patents-in-Suit. Using what I understand of the requirements of 35 U.S.C. § 112 sixth paragraph, “securing device” must be construed to be only the ring labeled “34” in FIG 7 and labeled “40” in FIG 8, and not the broad range of possible attachment methods briefly cited but not explained by Dr. Glancey (Glancey, para 65), but not supported by the written description of the Patents-in-Suit. In other words, the “securing device” mentioned in the claims in the Patents-in-Suit must be construed as a “ring, of a width roughly one fifth of the width of the threaded portion of the female coupler, encompassing and affixing or attaching firmly the restrictor sleeves, the ends of the outer tube, and the ends of the inner tube to the couplers so they cannot be removed.”

VI. RESERVATION OF RIGHTS

120. I understand that discovery in this case is ongoing. I reserve the right to amend or supplement my opinions expressed above upon the discovery of new facts and information. This includes, but is not limited to, deposition testimony or additional documents and statements that I may become aware of.

121. I reserve the right to submit additional materials related to my opinion about the material phrase and its construction upon any critique or analysis of my opinions, including but not limited to a response to any testimony set forth by Plaintiff’s expert Dr. James L. Glancey, or any testimony of other experts relied upon by the Plaintiff. In addition, I reserve the right to submit

additional expert reports in this matter should they be needed or requested by the parties and/or Court. Finally, I reserve the right to rely on any visual aid or demonstrative in support of my opinions should the Court request my testimony.

I declare under penalty of perjury that the foregoing is true and correct.

DATED: 16 Jan 2024



John M. Feland, III, Ph.D.

Exhibit 1

Color Oxford English Dictionary

The world's most
trusted dictionaries

wherever you are



second-degree (of burns) causing blistering but not permanent scars. **second-guess** predict someone's actions or thoughts by guesswork. **second-hand** 1 having had a previous owner. 2 heard from another person. **second nature** a habit that has become instinctive. **second-rate** of bad quality. **second sight** the supposed ability to know what will happen in the future. **second thoughts** a change of opinion after reconsidering something. **second wind** fresh energy gained during exercise after having been out of breath.

■ **secondly** adverb.

second² noun 1 a unit of time equal to one sixtieth of a minute. 2 (a **second**) informal a very short time. 3 a measurement of an angle equal to one sixtieth of a minute.

second³ /si-kond/ verb Brit. temporarily move a worker to another position or role.

■ **secondment** noun.

secondary adjective 1 coming after, or less important than, something else. 2 (of education) for children from the age of eleven to sixteen or eighteen. ■ **secondarily** adverb.

secret adjective 1 hidden from, or not known by, other people. 2 secretive. ■ noun 1 something that other people do not know about. 2 a method of achieving something that is not generally known.

■ **secret agent** a spy. **secret police** a police force working in secret against a government's political opponents. **secret service** a government department concerned with spying. ■ **secrecy** noun

secretly adverb.

secretariat /sek-ri-tair-i-uht/ noun a government office or department.

secretary noun (plural **secretaries**) 1 a person employed to type letters, keep records, etc. 2 an official of a society or other organization.

■ **Secretary of State** 1 (in the UK) the head of a major government department. 2 (in the US) the government official responsible for

foreign affairs. ■ **secretarial** adjective.

✓ -ary, not -ery: **secretary**.

secrete verb (secretes, secreting, secreted) 1 (of a cell, gland, or organ) produce a liquid substance. 2 hide an object. ■ **secretion** noun.

secretive adjective inclined to hide your feelings or not to give out information. ■ **secretively** adverb.

sect noun a small religious or political group with different beliefs from those of the larger group that they belong to.

sectarian adjective having to do with a sect or group.

■ **sectarianism** noun.

section noun 1 any of the parts into which something is divided. 2 a distinct group within a larger body of people or things. 3 the shape that results from cutting through something. ■ verb divide into sections.

sector noun 1 a distinct area or part. 2 a part of a circle between two lines drawn from its centre to its circumference.

secular adjective not religious or spiritual. ■ **secularism** noun.

secure adjective 1 certain to remain safe. 2 fixed or fastened so as not to give way or become loose. 3 free from fear or anxiety. ■ verb (secures, securing, secured) 1 protect against danger or threat. 2 firmly fix or fasten. 3 succeed in obtaining.

■ **securely** adverb.

security noun (plural **securities**) 1 the state of being or feeling secure.

2 the safety of a state or organization. 3 a valuable item offered as a guarantee that you will repay a loan.

sedan noun 1 an enclosed chair carried between two horizontal poles. 2 N. Amer. a car for four or more people.

sedate adjective 1 calm and unhurried. 2 respectable and rather dull. ■ verb (sedates, sedating, sedated) give someone a sedative drug. ■ **sedately** adverb.

sedation noun the action of

sedating someone.

sedative adjective having the effect of making someone calm or sleepy. ■ noun a sedative drug.

sedentary /sed-uh-n-tri/ adjective

1 involving a lot of sitting and not much exercise. 2 sitting down a lot; taking little exercise.

sedge noun a grass-like plant that grows in wet ground.

sediment noun 1 matter that settles to the bottom of a liquid. 2 material carried by water or wind and deposited on land.

■ **sedimentary** adjective.

sedition noun things done or said to stir up rebellion against a ruler or government. ■ **seditious** adjective.

seduce verb (seduces, seducing, seduced) 1 persuade someone to do something unwise. 2 persuade someone to have sex with you.

■ **seduction** noun.

seductive adjective tempting and attractive. ■ **seductively** adverb.

sedulous adjective showing great care or effort; diligent.

see¹ verb (sees, seeing, saw; past participle **seen**) 1 become aware of with the eyes. 2 experience or witness. 3 realize something after thinking or getting information. 4 think of in a particular way. 5 meet someone socially or by chance. 6 meet someone regularly as a boyfriend or girlfriend.

7 consult a specialist or professional. 8 guide or lead someone somewhere. ■ **see someone off** go with a person who is leaving to their point of departure. **see**

something through carry on with a project until it is completed. **see-through** transparent or semi-transparent. **see to** deal with.

see² noun the district or position of a bishop or archbishop.

seed noun 1 a small, hard object produced by a plant, from which a new plant may grow. 2 the beginning of a feeling, process, etc.

3 any of the stronger competitors in a sports tournament who are kept from playing each other in the early rounds. 4 old use a man's

semen. ■ verb 1 sow land with seeds. 2 remove the seeds from. 3 (be **seeded**) be made a seed in a sports tournament.

seedling noun a young plant raised from seed.

seedy adjective (seedier, seediest) unpleasant because dirty or immoral. ■ **seediness** noun.

seeing conjunction because; since.

seek verb (seeks, seeking, sought) 1 try to find or get. 2 ask for.

3 (seek to do) try or want to do. 4 (seek someone/thing out) search for and find someone or something. ■ **seeker** noun.

seem verb 1 give the impression of being. 2 (cannot seem to do) be unable to do, despite having tried.

seeming adjective appearing to be real or true. ■ **seemingly** adverb.

seemly adjective respectable or in good taste.

seen past participle of **SEE**¹.

seep verb (of a liquid) flow or leak slowly through a substance.

■ **seepage** noun.

seer noun a person supposedly able to see visions of the future.

seersucker noun a fabric with a crinkled surface.

see-saw noun a long plank supported in the middle, on each end of which children sit and move up and down by pushing the ground with their feet. ■ verb repeatedly change between two states or positions.

seethe verb (seethes, seething, seethed) 1 be very angry but try not to show it. 2 be filled with a crowd that is moving about. 3 (of a liquid) boil or churn.

segment noun /seg-muhnt/ each of the parts into which something is divided. ■ verb /seg-mənt/ divide into segments.

segregate verb (segregates, segregating, segregated) 1 keep separate from the rest or from each other. 2 keep people of different races, sexes, or religions separate.

■ **segregation** noun.

segue /seg-way/ verb (segues,

countermand | course

countermand **verb** cancel an order.

countermeasure **noun** something done to deal with a danger or threat.

counterpane **noun** dated a bedspread.

counterpart **noun** a person or thing that corresponds to another.

counterpoint **noun** **1** the playing of two or more tunes at the same time. **2** a tune played at the same time as another.

counterproductive **adjective** having the opposite effect to the one intended.

countersign **verb** sign a document that has already been signed by another person.

countersink **verb** (countersinks, countersinking, countersunk) insert a screw or bolt so that the head lies flat with the surface.

countertenor **noun** the highest male adult singing voice.

counterterrorism **noun** political or military activities designed to prevent terrorism.

countervailing **adjective** having an equal but opposite effect.

countess **noun** **1** the wife or widow of a count or earl. **2** a woman holding the rank of count or earl.

counting **preposition** taking account of; including.

countless **adjective** too many to be counted; very many.

countrified **adjective** characteristic of the country or country life.

country **noun** (plural **countries**) **1** a nation with its own government. **2** areas outside large towns and cities. **3** an area of land with particular physical features: *hilly country*. **□ country music** (or **country and western**) a kind of popular music from country areas of the southern US.

countryside **noun** land and scenery outside towns and cities.

county **noun** (plural **counties**) each of the main areas into which some countries are divided for the purposes of local government.

□ county town the main town of a county, where its council is based.

coup **/kuo/ noun** (plural **coups** /kuo/ /kooz/) **1** (also **coup d'état** /kuo day-tah/) a sudden violent seizing of power from a government. **2** a successful move or action.

coupe **/kuo-pay, koop/ noun** a sports car with a fixed roof and a sloping rear.

couple **noun** **1** two individuals of the same sort considered together. **2** two people who are married or in a romantic or sexual relationship. **3** informal an unspecified small number. **• verb** (couples, coupling, coupled) **1** connect or combine. **2** have sex.

couplet **noun** a pair of rhyming lines of poetry one after another.

coupling **noun** a device for connecting railway vehicles or parts of machinery together.

coupon **noun** **1** a voucher that gives you the right to claim a discount or buy something. **2** a form that can be sent off to ask for information or to enter a competition.

courage **noun** **1** the ability to do something frightening; bravery. **2** strength when faced with pain or grief.

courageous **adjective** having courage; brave. **■ courageously** **adverb**.

courgette **/koor-zhet/ noun** Brit. a long, thin vegetable with green skin.

courier **noun** **1** a person employed to deliver goods or documents quickly. **2** a person employed to guide and help a group of tourists.

course **noun** **1** a direction that is taken or intended. **2** the way in which something progresses or develops. **3** (also **course of action**) a way of dealing with a situation. **4** a dish forming one of the stages of a meal. **5** a series of lectures or lessons in a particular subject. **6** a series of repeated treatments or doses of a drug. **7** an area prepared for racing, golf, or another sport. **• verb** (courses, coursing, coursed) **1** (of liquid) flow. **2** (coursing) the

activity of hunting animals, especially hares, with greyhounds. **□ of course** **1** as expected. **2** certainly; yes.

! don't confuse course with coarse, which means 'having a rough texture'.

court **noun** **1** the judge, jury, and lawyers who sit and hear legal cases. **2** the place where a law court meets. **3** an area marked out for ball games such as tennis. **4** a courtyard. **5** the home, advisers, and staff of a king or queen. **• verb** **1** try to win someone's support. **2** behave in a way that might lead to something bad happening. **3** dated try to win the love of someone you want to marry. **□ court shoe** a woman's plain shoe with a low-cut upper and no fastening. **hold court** be the centre of attention.

courteous **/ker-ti-uhss/ adjective** polite and considerate. **■ courteously** **adverb**.

courtesan **/kor-ti-zan/ noun** a prostitute with wealthy clients.

courtesy **/ker-tuh-si/ noun** (plural **courtesies**) **1** polite and considerate behaviour. **2** a polite speech or action. **□ courtesy of** given or allowed by.

courtier **/kor-ti-er/ noun** a companion or adviser of a king or queen.

courtly **adjective** (courtier, courtliest) very dignified and polite.

court martial **noun** (plural **courts martial**) a court for trying people accused of breaking military law. **• verb** (court-martial) (court-martials, court-martialling, court-martialled) try someone in a court martial.

courtship **noun** **1** a period during which a couple develop a romantic relationship. **2** the process of trying to win someone's love or support.

courtyard **noun** an open area enclosed by walls or buildings.

couscous **/kuuss-kuuss/ noun** a North African dish of steamed or soaked semolina.

cousin **noun** (also **first cousin**) a

court | covert

child of your uncle or aunt. **□ second cousin** a child of your mother's or father's first cousin.

couture **/kuo-tyoor/ noun** the design and making of fashionable clothes, especially for a particular customer.

couturier **/kuo-tyoo-ri-ay/ noun** a person who designs couture clothes.

cove **noun** a small sheltered bay.

coven **/kuv-uhn/ noun** a group of witches who meet regularly.

covenant **/kuv-uh-nuhnt/ noun** **1** a formal agreement. **2** an agreement to make regular payments to a charity.

cover **verb** (covers, covering, covered) **1** put something over or in front of a person or thing so as to protect or hide them. **2** spread or extend over an area. **3** deal with a subject. **4** travel a particular distance. **5** (of money) be enough to pay for something. **6** (of insurance) protect against a loss or accident. **7** (cover something up) try to hide or deny a mistake or crime. **8** (cover for) temporarily take over someone's job. **9** perform a cover version of a song. **• noun** **1** something that covers or protects. **2** a thick protective outer part or page of a book or magazine. **3** shelter. **4** a means of hiding an illegal or secret activity. **5** protection by insurance. **6** (also **cover version**) a performance of a song previously recorded by a different artist. **□ break cover** suddenly leave shelter when being chased. **cover charge** a charge per person added to the bill in a restaurant. **covering letter** a letter sent with a document or parcel to explain what it is. **cover-up** an attempt to hide a mistake or crime.

coverage **noun** the extent to which something is covered.

coverlet **noun** a bedspread.

covert **adjective** /kuv-ert, koh-vert/ not done openly; secret. **• noun** /kuv-ert/ an area of bushes and undergrowth where game birds and animals can hide. **■ covertly** **adverb**.

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Exhibit 2

Concise Oxford English Dictionary

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country house ■ n. Brit. a large house in the country, typically the seat of a wealthy or aristocratic family.

countryman (or **countrywoman**) ■ n. (pl. **countrymen** or **countrywomen**) 1 a person living or born in the country. 2 a person from the same country as someone else: *my fellow countryman*.

country mile ■ n. informal a very long way.

country music ■ n. a form of popular music that originates in the rural southern US, characteristically featuring guitar and pedal steel guitar.

country rock¹ ■ n. Geology the rock which encloses a mineral deposit, igneous intrusion, or other feature.

country rock² ■ n. a type of popular music that is a blend of rock and country music.

countryside ■ n. the land and scenery of a rural area.

countrywide ■ adj. & adv. extending throughout a nation.

county ■ n. (pl. **counties**) 1 a territorial division of some countries, forming the chief unit of local administration. ▶ US a political and administrative division of a state. 2 [as modifier] Brit. of or denoting aristocratic people with an ancestral home in a particular county.

– ORIGIN ME: from OFr. *conte*, from L. *comitatus*, from *comes*, *comit-* (see **COUNT**²).

county borough ■ n. (in England, Wales, and Northern Ireland) a large town formerly having the administrative status of a county.

county commissioner ■ n. Brit. a Justice of the Peace on the commission of the peace of a county.

county corporate ■ n. Brit. historical a city or town that ranks as an administrative county.

county council ■ n. (in the UK) the elected governing body of an administrative county.

– DERIVATIVES **county councillor** n.

county court ■ n. (in England and Wales) a judicial court for civil cases. ▶ US a court for civil and criminal cases.

County Palatine ■ n. historical (in England and Ireland) a county in which royal privileges and exclusive rights of jurisdiction were held by its earl or lord.

county town (N. Amer. **county seat**) ■ n. the town that is the administrative capital of a county.

coup /ku:/ ■ n. (pl. **coups** /ku:z/) 1 (also **coup d'état**) a sudden violent seizure of power from a government. 2 an unexpected and notably successful act. 3 Billiards a direct pocketing of the cue ball, which is a foul stroke. 4 historical (among North American Indians) an act of touching an enemy, as a deed of bravery.

– ORIGIN C18: from Fr., from med. L. *colpus* (see **COPE**).

coup de foudre /,ku: də 'fu:dr(ə)/ ■ n. (pl. **coups de foudre** pronunc. same) a sudden unforeseen event, especially love at first sight.

– ORIGIN Fr., lit. 'stroke of lightning'.

coup de grâce /,ku: də 'grā:s/ ■ n. (pl. **coups de grâce** pronunc. same) a final blow or shot given to kill a wounded person or animal.

– ORIGIN Fr., lit. 'stroke of grace'.

coup de main /,ku: da 'mā/ ■ n. (pl. **coups de main** pronunc. same) a sudden surprise attack.

– ORIGIN Fr., lit. 'stroke of hand'.

coup d'état /,ku: dər'ta:/ ■ n. (pl. **coups d'état** pronunc. same) see **COUP** (sense 1).

– ORIGIN Fr., lit. 'blow of state'.

coup de théâtre /,ku: da ter'o:tr(ə)/ ■ n. (pl. **coups de théâtre** pronunc. same) 1 a dramatically sudden action or turn of events, especially in a play. 2 a successful theatrical production.

– ORIGIN Fr., lit. 'blow of theatre'.

four-wheeled enclosed carriage for two passengers and a driver.

– ORIGIN C19: from Fr. *carrosse coupé*, lit. 'cut carriage'.

couped /ku:pɪt/ ■ adj. Heraldry cut off or truncated in a straight line.

– ORIGIN C16: from Fr. *couper* 'to cut' + -ED².

couple ■ n. 1 two individuals of the same sort considered together. 2 [treated as sing. or pl.] two people who are married or otherwise closely associated romantically or sexually. 3 informal an indefinite small number: *a couple of days ago*. 4 Mechanics a pair of equal and parallel forces acting in opposite directions, and tending to cause rotation about an axis perpendicular to the plane containing them. ■ v. 1 join to form a pair. ▶ (often **be coupled to/with**) combine. ▶ connect (a railway vehicle or a piece of equipment) to another. 2 have sexual intercourse.

– DERIVATIVES **coupledom** n.

– ORIGIN ME: from OFr. *cople* (n.), *copler* (v.), from L. *copula* (n.), *copulare* (v.), from *co-* 'together' + *apere* 'fasten'; cf. **COPULA** and **COPULATE**.

coupler ■ n. 1 something that connects or couples two things. 2 Photography a compound in a developer or an emulsion which combines with the products of development to form an insoluble dye, part of the image. 3 (also **acoustic coupler**) a modem which converts digital signals into audible signals and vice versa so that they can be transmitted and received over telephone lines.

couplet ■ n. a pair of successive lines of verse, typically rhyming and of the same length.

– ORIGIN C16: from Fr., dimin. of **couple**, from OFr. *cople* (see **CUPLE**).

coupling ■ n. a device for coupling railway vehicles or parts of machinery together.

coupling constant ■ n. Physics a constant representing the strength of the interaction between a particle and a field.

coupling rod ■ n. a rod which couples the driving wheels of a locomotive, enabling them to act as a unit.

couply /'kʌpli/ (also **coupley**) ■ adj. informal, often derogatory relating to or characteristic of a couple in a romantic or sexual relationship.

coupon ■ n. 1 a voucher entitling the holder to a discount on a product or a quantity of something rationed. 2 a detachable form used to send for a purchase or information or to enter a competition. 3 a detachable portion of a bond which is given up in return for a payment of interest. ▶ the nominal rate of interest on a fixed-interest security. 4 Scottish & Irish a person's face.

– ORIGIN C19: from Fr., lit. 'piece cut off', from *couper* 'cut'.

courage ■ n. the ability to do something that frightens one. ▶ strength in the face of pain or grief.

– PHRASES **have the courage of one's convictions** act on one's beliefs despite danger or disapproval. **take courage** make an effort to do something that frightens one. **take one's courage in both hands** nerve oneself to do something that frightens one.

– ORIGIN ME: from OFr. *corage*, from L. *cor* 'heart'.

courageous ■ adj. having courage; brave.

– DERIVATIVES **courageously** adv. **courageousness** n.

courant /ku'rɑnt/ ■ adj. Heraldry represented as running.

– ORIGIN C17: Fr., 'running', pres. part. of *courir*.

courante /ku'rōt, -'rɑ:nt/ ■ n. a rapid gliding dance in quick triple time.

– ORIGIN C16: Fr., lit. 'running', fem. pres. part. of *courir*.

courtbette /kuə'bɛt/ ■ n. (in classical riding) a

movement in which the horse performs a series of

denoting a carnassial tooth, or a similar cutting tooth in mammals other than carnivores.

secular /'sekjʊlə/ ■ adj. 1 not religious, sacred, or spiritual. 2 Christian Church not subject to or bound by religious rule. Contrasted with **REGULAR**. 3 Astronomy of or denoting slow changes in the motion of the sun or planets. 4 Economics (of a fluctuation or trend) occurring or persisting over an indefinitely long period.

5 occurring once every century or similarly long period (used especially in reference to celebratory games in ancient Rome). ■ n. a secular priest.

— DERIVATIVES **secularism** n. **secularist** n. **secularity** n. **secularization** or **secularisation** n. **secularize** or **secularise** v. **secularly** adv.

— ORIGIN ME: senses 1 and 2 from OFr. *seculer*, from L. *saecularis*, from *saeculum* 'generation', used in Christian L. to mean 'the world'; senses 3, 4, and 5 (C19) from L. *saecularis* 'relating to an age or period'.

secular arm ■ n. the legal authority of the civil power as invoked by the Church to punish offenders.

secund /sɪ'kənd/ ■ adj. Botany arranged on one side only (such as the flowers of lily of the valley).

— DERIVATIVES **secundly** adv.

— ORIGIN C18: from L. *secundus* (see **SECOND**).

secure ■ adj. 1 fixed or fastened so as not to give way, become loose, or be lost. 2 certain to remain safe and unthreatened. ► protected against attack or other criminal activity. 3 feeling free from fear or anxiety. ► (**secure of**) dated feeling no doubts about attaining. 4 (of a place of detention) having provisions against the escape of inmates. ■ v. 1 fix or fasten securely. 2 protect against threats. 3 succeed in obtaining.

► seek to guarantee repayment of (a loan) by having a right to take possession of an asset in the event of non-payment. 4 Surgery compress (a blood vessel) to prevent bleeding.

— PHRASES **secure arms** Military hold a rifle with the muzzle downward and the lock in the armpit to guard it from rain.

— DERIVATIVES **securable** adj. **securely** adv. **securement** n. **secureness** n.

— ORIGIN C16 (earlier (ME) as *security*): from L. *securus*, from *se-* 'without' + *cura* 'care'.

securitize or **securitise** ■ v. [often as adj. **securitized**]

convert (an asset, especially a loan) into marketable securities, typically for the purpose of raising cash.

— DERIVATIVES **securitization** n.

security ■ n. (pl. **securities**) 1 the state of being or feeling secure. 2 the safety of a state or organization against criminal activity such as terrorism. ► measures taken to ensure such safety. 3 a thing deposited or pledged as a guarantee of the fulfilment of an undertaking or the repayment of a loan, to be forfeited in case of default. 4 a certificate attesting credit, the ownership of stocks or bonds, or the right to ownership connected with tradable derivatives.

security blanket ■ n. 1 a blanket or other familiar object which is a comfort to a child. 2 Brit. an official sanction imposed on information in order to maintain complete secrecy.

sedan /'sɪ:dn/ ■ n. 1 (also **sedan chair**) an enclosed chair for conveying one person, carried between horizontal poles by two porters, common in the 17th and 18th centuries. 2 chiefly N. Amer. a car for four or more people.

— ORIGIN perh. an alt. of an Ital. dial. word, based on L. *sella* 'saddle'.

sedate¹ ■ adj. 1 calm and unhurried. 2 staid and rather dull.

— DERIVATIVES **sedately** adv. **sedateness** n.

— ORIGIN ME (also as a medical term in the sense 'not

sedative drug).

— ORIGIN ME: from OFr. *sedatif* or med. L. *sedativus*, from L. *sedat-*, *sedare* (see **SEDATE**¹).

sedentary /'sed(ə)nt(ə)ri/ ■ adj. 1 tending to spend much time seated. ► (of work or a way of life) characterized by much sitting and little physical exercise. ► sitting. 2 Zoology & Anthropology inhabiting the same locality throughout life. 3 Zoology sessile.

— DERIVATIVES **sedentarily** adv. **sedentariness** n.

— ORIGIN C16 (in the sense 'not migratory'): from Fr. *sédentaire* or L. *sedentarius*, from *sedere* 'sit'.

Seder /'seɪdə/ ■ n. a Jewish ritual service and ceremonial dinner for the first night or first two nights of Passover.

— ORIGIN from Heb. *seder* 'order, procedure'.

sederunt /sɪ'dɪərənt, -'de:-/ ■ n. (in Scotland) a sitting of an ecclesiastical assembly or other body.

— ORIGIN C17: from L., lit. '(the following persons) sat'.

sedge ■ n. a grass-like plant with triangular stems and inconspicuous flowers, growing typically in wet ground. [Carex and other genera.]

— DERIVATIVES **sedgy** adj.

— ORIGIN OE *secg*, of Gmc origin.

sedge warbler ■ n. a common migratory songbird with streaky brown plumage, frequenting marshes and reed beds. [*Acrocephalus schoenobaenus*]

sedilia /sɪ'dɪliə/ ■ pl. n. (sing. **sedile** /sɪ'dɪli/) a group of three stone seats for clergy in the south chancel wall of a church.

— ORIGIN C18: from L., 'seat'.

sediment ■ n. 1 matter that settles to the bottom of a liquid. 2 Geology particulate matter carried by water or wind and deposited on the land surface or seabed. ■ v. settle or deposit as sediment.

— DERIVATIVES **sedimentation** n.

— ORIGIN C16: from Fr. *sédiment* or L. *sedimentum* 'settling'.

sedimentary ■ adj. relating to sediment. ► Geology (of rock) that has formed from sediment deposited by water or wind.

sedition ■ n. conduct or speech inciting rebellion against the authority of a state or monarch.

— DERIVATIVES **seditious** adj. **seditiously** adv.

— ORIGIN ME (in the sense 'violent strife'): from OFr., or from L. *seditio(n)-*, from *sed-* 'apart' + *itio(n)-* 'going'.

seduce ■ v. 1 entice into sexual activity. 2 persuade to do something inadvisable.

— DERIVATIVES **seducer** n. **seducible** adj. **seductress** n.

— ORIGIN C15 (earlier (ME) as *seduction*): from L. *seducere*, from *se-* 'away' + *ducere* 'to lead'.

seduction ■ n. the action of seducing someone. ► a tempting or attractive thing.

seductive ■ adj. tempting and attractive.

— DERIVATIVES **seductively** adv. **seductiveness** n.

sedulous /'sedjʊləs/ ■ adj. showing dedication and diligence.

— DERIVATIVES **sedulity** /sɪ'dju:lɪtɪ/ n. **sedulously** adv. **sedulousness** n.

— ORIGIN C16: from L. *sedulus* 'zealous' + *-ous*.

sedum /'sɪ:dəm/ ■ n. a fleshy-leaved plant of a large genus including the stonecrops, with small star-shaped flowers. [Genus *Sedum*.]

— ORIGIN from mod. L., denoting a houseleek.

see¹ ■ v. (sees, seeing, saw; past part. **seen**) 1 perceive with the eyes. ► watch (a game, film, or other entertainment). ► experience or witness (an event or situation). 2 deduce after reflection or from information. ► ascertain or establish after inquiry or consideration. 3 regard in a specified way. ► envisage as a possibility. 4 meet (someone one knows) socially or by chance. ► meet regularly as a boyfriend or

Exhibit 3

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SECOND EDITION

Prepared by

J. A. SIMPSON *and* E. S. C. WEINER

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COUP

Bards of Tyne 356 There's Billy the Barber for coupin' see cliver. *Mod. Sc.* I'll coup knives with you.

coup, coupe (ku:p), v.² Also 5 *cope*. [a. F. *couper* to cut: cf. *COPE* v.⁴, a doublet of this.] [†]1. *trans.* To cut, slash. *Obs.* (Only in people.)

^{a1300} *Syr Degrarre* 790 His sschon i-couped as a kniȝt. ¹³⁷⁷ *Langl. P. Pl. B. xviii.* 14 To geten him gylte spores or galoches i-couped [C. y-coped, ykeped]. ^{c1435} *Torr. Portugal* 1193 Withoute couped shone.

2. *Her.* To cut off clean: see *COUPED*.

¹⁶¹⁰ *Guillim Heraldry* III. xiii. (1660) 160 Couping is when a part is cut off smooth. ¹⁶³⁹ *FULLER Holy War* v. xxiv. (1640) 285 Piercing, voiding, fimbriating, ingrailing, couping [the cross].

coup (kaup), v.³ *Sc.* Also 5 *couape*, 8 *cownp*. [prob. originally the same word as *COPE* v.² (which had variant forms *couape*, *couape*). From sense 1, we pass easily to that of 'upset or overturn with a shock or impact', and so to 'upset, overturn, tilt' generally; cf. the sense history of *TIILT* v.]

†1. *intr.* To strike; to come to blows, meet in the shock of combat, tilt. *Obs.* See *COPE* v.²

^{a1400} *Morte Arth.* 2059 Thane the comlyche kynghe.. With a crewelle launce cowpez fulle euene.. emange the schortte rybys. ^{c1400} *Rowland & O.* 453 In scheldes pay couped full euene.

2. *trans.* To overturn, upset, tilt; to empty out, as from a cart or wheelbarrow by suddenly tilting or the like; to toss off (a pot of liquor). ^{to coup} the crans, or creels: *Sc.* Fishery phrases; also fig. to cause or sustain an upset, be upset, come to grief; in various applications. (See *CRAN*, *CREEL*.)

^{a1572} *Knox Hist. Ref.* 203 (Jam.) The pure woman.. coupt up his heilles so that his heid went down. ^{c1610} *Sir J. Melvil. Mem.* (1735) 399 He is in hazard of being couped and wrecked. ¹⁷⁸⁵ *Burns To J. Lapraik* 13 Sept. ix. But stocks are cowpet wi' the blast. ¹⁸¹⁶ *Scott Old Mort.* xxviii. 'The bairns would be left to.. coup aine another into the fire.' ¹⁸¹⁸ — *Hrt. Mid.* xviii. 'She only spes fortunes, and does not.. coup cadgers' carts, or any sort of mischief.' ¹⁸²³⁻⁵³ *Whistle-binkie* (Sc. Songs) Ser. III. 9 Let us coup aff our bicker, And toast meikle joy to the twa. ¹⁸⁷⁴ *Sunday Mag.* 823 He just brings a cartload of texts and cowpthem in. *Mod. Sc.* The horse ran away and coupit the cart.

3. *intr.* To be overturned or upset; to fall or tumble over; to capsize.

¹⁷⁸⁵ *Burns Dr. Hornbook* xviii, I drew my scythe in sic a fury, I near-hand cowpit wi' my hurry. ¹⁸²⁴ *Scott Redgauntlet* Let. xi. 'Ower he cowped as if he had been dead.' ¹⁸⁵³ *READE Chr. Johnstone* 228 'She'll haue coupit a mile west Inch Keith, an' the tide rinning aff the island.'

coup, obs. form of *COOP*, *COPE*, *CUP*.

coupabil, -ble, obs. forms of *CULPABLE*.

[†]**coupage**. *Obs. rare.* [a. F. *coupage*, f. *couper* to cut; see -AGE.] The cutting up or carving of meat at table.

^{a1483} *Liber Niger in Housh. Ord.* 59 That ye.. be at the coupage of fleyhsse and at the departing of fysse.

coupar, obs. form of *COOPER*.

coup-cart ('kaup,ka:t). [f. *COUP* sb.¹, ² or v.³]

1. = *COUP* sb.² 1, a box-cart.

¹⁷⁹⁴ *Statist. Acc. Scotl.* XII. 185 (Jam.) In the year 1750, there were but two box-carts, or what is here called coup carts, in the parish [of St. Vigean, Forfar], but at present there is no other kind made use of here. ¹⁸⁰⁵ *R. W. DICKSON Pract. Agric.* (1807) I. 61 A close single-horse cart.. sometimes termed a coup-cart. ¹⁸⁶⁸ *ATKINSON Cleveland Gloss.* 1869 *Lonsdale Gloss.*, *Coup*, *Coup-cart*, a dung-cart, a small cart.

2. A cart with a body which can be tilted, so that the load may be 'couped' out. (Chiefly *Sc.*)

¹⁷⁹⁴ *Agric. Surv. Berwicksh.* 167 (Jam.) The body of the coup cart is attached to the shafts by a peculiar kind of hinges, which allow of elevating it before, either partially or entirely, to facilitate the discharge of its load backwards. ¹⁷⁹⁹ *J. ROBERTSON Agric. Perth* 100 Used in what are called coup-carts, i.e. when the box is moveable on a frame; and the contents can be discharged, without lifting the shafts. ¹⁸⁵⁵ *ROBINSON Whithby Gloss.*, *Coup*, to tilt out the material from a 'coup cart', or cart that turns up to be emptied.

coupe¹ (ku:p). [Fr., goblet.] a. A shallow cup, bowl, or glass. b. A mixture of ice-cream and fruit, etc., served in a glass goblet or the like; spec. *coupe Jacques* (see quot. 1951).

¹⁸⁹⁵ *Montgomery Ward Catal.* 528/2 *Soup Coupe Saucer shape*. ¹⁹⁰⁵ *E. Wharton House of Mirth* II. iv. 355 What sweet shall we have to-day, dear—*Coupe Jacques* or *Pêches à la Melba*? ¹⁹⁵¹ *Good Househ. Home Encycl.* 421/2 *Coupe Jacques*. Half-fill the glass goblets with fruit salad, flavoured with kirsch, cover this with a layer of vanilla ice cream, and then add a layer of strawberry ice. Decorate with a glace cherry. ¹⁹⁶⁷ *Spectator* 29 Sept. 378/1 The tulip-shaped glass is much more suitable than the coupe—among other reasons because it holds the champagne bubbles more successfully. ¹⁹⁶⁹ *R. & D. De SOLA Dict. Cooking* 74/2 *Coupe glaçée*, ice cream or sherbet combined with fruit or other ingredients, coupe is always served in a rimless bowl or cup. ¹⁹⁷⁰ *Southerly XXX.* 17 Proudly he carried the brimming bucket into the kitchen where Medora was filling coupes with porridge.

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¹⁹⁷⁰ *Pilot Staffordsh.* (1686) 297 Three childrens heads couped at the shoulders. ¹⁷⁰⁵ *HEARNE Collect.* 24 Nov., An

COUPLE

Asses Head couped. ¹⁸⁶⁴ *BOUTELL Heraldry Hist. & Pop.* xvii. (ed. 3) 274 A dexter hand couped at the wrist. ¹⁸⁸² *CUSSANS Her.* iv. 61 The Cross humetté, or couped, as its name implies, has its extremities cut off.

transf. ¹⁶⁷⁸ *BUTLER Hud.* III. iii. 214 Th' Ears, Eras'd, or Coup'd for Perjurers.

coupee (ku:p'i), sb. Also 8 *coopee*, *coupie*, *coupé*. [ad. F. *coupé* in same sense: see -EE.] A dance step formerly much used; the dancer rests on one foot and passes the other forward or backward, making a sort of salutation; hence, sometimes used for a bow made while advancing.

¹⁶⁷³ *WYCHERLEY Gentl. Dancing-Master* III. i. One, two, and a coupee. ¹⁶⁹⁰ *D'URFEE Collin's Walk* III. (D.) Coupees low and pauver drudges. ¹⁷⁰⁸ *MOTTET Rabelais* v. xxiv. (1737) 105 Jerts.. Coupés, Hops, Leadings, Risings. ¹⁷⁵⁷ *MRS. GRIFFITH Lett. Henry & Frances* (1767) II. 105 Why shall a man practise coupees, who only means to walk? ¹⁸²⁷ *LAMB Let. to Barton in Final Mem.* viii. (1865) 261 Advancing.. with a coupee and a sidelong bow.

Hence *coupee v. intr.*, to make this movement; to make a sort of bow or salutation in dancing.

¹⁶⁹⁰ *D'URFEE Collin's Walk* III. (D.) [He] Would lose his freedom like a puppy. Rather than she [his daughter] not learn to coupee. ¹⁷⁰⁷ *J. STEVENS tr. Quevedo's Com. Wks.* (1709) 386 It being dubious whether I limp or coupee. ¹⁷⁴⁸ *Earthquake of Peru* iii. 255 That it may not hinder them in rising or coupeeing.

coupe-gorge (ku:pgo:ʒ). [F.; = cut-throat.]

†1. A cut-throat. *Obs.*

^{c1400} *Rom. Rose* 7422 A rasour sharpe and wel biting That was forged in a forge Which that men clepen Coupe-Gorge. [Hence in *MINSHEU* 1617, *PHILLIPS*, *COLES*.]

2. Used in a military sense to signify any spot or position which affords an enemy so many advantages that the troops who occupy it must either surrender or be cut to pieces' (Stocqueler).

3. fig.

¹⁶¹² *SIR R. WINWOOD Let. to Jas. I* in *Motley Barneveld* II. 456 On thys, he long insysted, as th' only coupe-gorge, of all resultats, whatsover, between france and spayne.

coupel, obs. f. *CUPLE*.

couper, cowper ('kaupə(r)). *Sc.* and *north. dial.* [f. *COUP* v.¹ + -ER.] One who barters, deals, or buys and sells. Cf. *COPER*. Now chiefly in *Comb.*, as *herring-, horse-couper*, etc.

¹⁵⁸¹ *Sc. Acc. Jas. VI* (1597) §122 The halding of horses at hard meat all the Sommer season, vsed communlie be.. Cowpers. ^{a1662} *R. BAILLIE Lett.* I. 85 (Jam.) The horse which our coupers had bought at Morton fair. ¹⁷⁰² *Statist. Acc. Scotl.* VI. 44 note (Jam.) Nor are they.. a match for horse-cowpers, cow-cowpers,—the people that farmers have to deal with. ¹⁸⁴⁴ *W. H. MAXWELL Sports & Adv. Scot. xiii.* (1855) 121 Its visitants [were] Dutch herring-coupers.

couper, obs. form of *COOPER*, *COPPER*.

coupholite ('kaufələit). *Min.* Also *koupholite*. [Named 1797 from Gr. κοῦφος tender + -LITE.] A variety of *PREHNITE* occurring in thin fragile laminae.

¹⁸⁰⁵ *R. JAMESON Min.* II. 561 Foliated Prehnite.. Koupholite. ¹⁸⁶⁸ *DANA Min.* 411 s.v. *Prehnite*, *Coupholite* is in cavernous masses, made of small, thin, fragile laminae or scales.

coupis, pl. of *coupe*, obs. form of *CUP*.

coupissee, obs. form of *COPPISE*.

coupla ('kapl). orig. *U.S.* Colloquial form of *couple* of.

¹⁹⁰⁸ *H. GREEN Actors' Boarding House* 254 A coupletis come for rooms! ¹⁹³⁴ *D. L. SAYERS Nine Tailors* III. ii. 276 He'd had nothing to eat.. for a couplet days. ¹⁹⁶⁵ *H. C. RAE Skinner* II. xiii. 119 I'll manage to palm the thing off on some mug for a couplet quick quid profit.

couple ('kapləl), sb. Forms: 4 *coppell*, 4-5 *coupl*, *coupl*(*l*), *coupel*, 4-6 *coupil*(*l*), -*yl*(*l*), *couple*, *couple*, 4-7 *cupple*, 5 *couppl*, *coupw*, *cwpyle*, *cuppil*, -*ylle*, 5-6 *copel*, -*ill*(*l*), -*yl*(*l*), *couple*, 6 *couple*, 4- couple. [a. OF. *cople*, *cuple*, later *couple*:—L. *cōpula* band, tie, connexion: see *COPULA*.]

I. That which unites two.

1. a. A brace or leash for holding two hounds together. Usually in *pl.*; also a *pair of couples*.

^{c1340} *Gaw. & Gr. Kn.* 1147 Couples hentes of kest [= hunters cast off couples]. ¹⁴⁸³ *Cath. Angl.* 86 A Cwpyle of hundys, *copula*. ¹⁴⁸⁶ *Bk. St. Albans* E vB, When he has of cast his couples will. ¹⁶⁰² *Return fr. Parnass.* II. v. (Arb.) 32 Another company of hounds.. had their couples cast off. ¹⁶⁷⁸ *Lord. Gaz.* No. 1345/4 Strayed.. a red pied Fox Beagle Bitch.. with a pair of Couples about her neck. ^{a1763} *SHENSTONE Progr. Taste* II. 10 Oh days! when to a girdle ty'd, The couples gangled at his side. ¹⁷⁸¹ *P. BECKFORD Hunting* (1802) 81 Care should be taken that the couples be not too loose, lest they should slip their necks out of the collar. ¹⁸²¹ *SCOTT Kenilw.* xxxiv, Hounds yelled in their couples.

fig. ¹⁸⁵⁵ *THACKERAY Newcomes* II. 66 In pursuit of a husband who will run away from the couple.

b. *transf.* and *fig.* to go, hunt, run in couples.

Here the original meaning is often forgotten, and *couples* used with the sense of *pairs*, *twos*.

COUPLE

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COUPLE

1610 B. JONSON *Alch.* i. i. 'Sdeath, you perpetual curs, Fall to your couples again, and cozen kindly.' **1611** SHAKS. *Wint.* T. II. i. 135 He keepe my Stables where I lode my Wife, Ile goe in couples with her. **1633** P. FLETCHER *Purple Isl.* II. 19 note, None of them [the persons] single, but runne in couples. **1644-7** CLEVELAND *Char. Lond. Diurn.* 4 They hund in their Couples, what one doth at the head, the other scores up at the heele. **1705** HICKERINGILL *Priest-cr.* II. iv. 39 (Like Blood-hounds) they usually hunt [in Couples] together, (Avarice and Ambition) that's their Name. **1736-9** DICKENS *Sk. Boz, Dancing Acad.* ix, And when he had been sufficiently broken in in the parlour he began to run in couples in the Assembly-room.

2. transf. **†a.** A connexion between two parts of the body; a ligament. *Obs.*

1535 COVERDALE *Col.* ii. 19 The heade wherof the whole body by ioyntes and couples reueath norishment and is knyt together.

†b. Gram. A connecting word or particle; a copula. *Obs.*

1628 T. SPENCER *Logick* 161 The Verbe (in the common language of the Schools) is called the band, or couple. **1711** J. GREENWOOD *Eng. Gram.* 152 It is called the Subjunctive Mood because it is subjoin'd or added to the first Sentence by some Cople or Tyte.

†3. Union or coupling in matrimony; the bond of wedlock; sexual union. *Obs.*

c1320 *Orpheo* 422 in Ritson *Metr. Rom.* II. 265 A foule couple it were forthy To lethe her com in thy company. **1362** LANGL. *P. Pl. A. x.* 180 Hit is an vn-comely couple.. To zeuen a song wenche to an old feble Mon. **c1450** MYRC 194 Wyth-owten copullie or fleschly dede. **1553** LD. BERNERS *Huon* cxxii. 631 It were a mete coply of vs twayne to be ioyned together in mariage. **1611** CORYAT *Crudities* 442 To be begotten in the honest and chast couple of marriage.

II. A union of two; a pair.

The plural after a numeral is often couple, esp. when followed by of with the names of animals or things.

4. A brace of dogs used for hunting, esp. harriers or spaniels; also, a brace of conies or rabbits.

c1430-50 *Two Cookery-bks.*, CC. copull Conyngges. **1470-85** MALORY *Arthur* x. xiii. 434 A noysse as hit hadde ben a thyrty couple of houndes. **1527** W. CAPON in *Fiddes Wolvey* II. (1726) 104 He gave to us 6 couple of conyes. **1610** GUILLIM *Heraldry* III. xiv. (1660) 167 Skiffull Forresters.. Do use to say, a Couple of Rabbets or Conies. **1636** W. DENNY in *Ann. Durbensis* (1877) 14 Then throw they in their Couples, and one cry Of many Parkes do ring about the Skie. **1725** BRADLEY *Fam. Dict.*, Couple, in respect to Conies and Rabbets, the proper Term for two of them; so it is for two Hounds. **1801** STRUTT *Sports & Past.* i. i. 19 Two spaniars or harriers were called a couple.

5. a. A man and woman united by love or marriage; a wedded or engaged pair.

a1300 *Cursor M.* 10168 (Cott.) To wif he has dame anna tan. —Was stiilk a couple [v.r. copul, couple] neuver nan. **1393** LANGL. *P. Pl. C. xix.* 224 The bible berep witnesse.. pat a-corsed til couples pat no kynde forth brouthe. **1436** E.E. *Wills* (1882) 107 Euerie couple of man & wyf dwelling at Ochecote. **1545** BRINKLOW *Comp.* 44 b., iij. pownd of eueri hundredreth, to be bestowyd vpon poore coplys at their maryages. **1610** SHAKS. *Temp.* iv. 1. 40, I must Bestow vpon the eyes of this yong couple Some vanity of mine Art. **1667** MILTON *P.L.* IV. 339 Fair couple, linkt in happy nuptial League. **1711** STEELE *Spect.* No. 254. ¶ 3 A very loving Couple. **1753** *Scots Mag.* Aug. 422/2 The happy couple who got the Dunstable bacon in 1751. **1847** EMERSON *Repr. Men. Uses of Gt. Men Wks.* (Bohn) I. 284 It is observed in old couples.. who have been housemates for a course of years, that they grow alike. **1875** MRS. RANDOLPH *Wild Hyacinth* I. 243 Sir Loudoun would give up Glen Ettrick at once to the young couple.

b. A man and woman associated as partners in a dance or the like.

1759 *Compl. Lett.-writer* (ed. 6) 226, I stood two couple above her. **1857** HUGHES *Tom Brown* II. viii. A merry country-dance was going on.. and new couples joined in every minute. **c1875** *Routledge's Ball-room Guide* 31 The Lancers must be danced by four couples only in each set.

6. Of animals: a. A pair of opposite sexes.

c1325 E.E. *Allit.* P. B. 333 Of vche best pat berez lyf busk be a couple. **1362** LANGL. *P. Pl. A. x.* 169 Alle schulen dye for his dedes.. Out-taken Elthe soules, and of vche beest a couple.

b. Farming. A ewe and her lamb; **double couple**, a ewe with two lambs.

a1722 LISLE *Husb. Gloss.* (E.D.S.), *Couples*, ewes and lambs. **1855** *Jnl. R. Agric. Soc. XVI.* II. 295, 200 ewes with their lambs, generally here [Bucks.] called 'couples'. **1882** *Somerset Gaz.* 18 Mar., 9 single couples and 1 double ditto of ewes and lambs.

7. a. gen. Two individuals (persons, animals, or things) of the same sort taken together; properly used of such as are paired or associated by some common function or relation; but often loosely, as a mere synonym for two. Cf. *pair*. **† couple of corn:** app. two quarters.

All shades of gradation connect the strict sense (as in 1541) with the loosest (as in 1711).

1365 DURH. *Halmete Rolls* (Surtees) 42 Ad emendum ij coppell' de silles cum les pannes. **c1400** BERYN 2002 per & per a couppil gon to speke & eke to roun. **1481** CAXTON *Reynard* (Arb.) 68 Tho gaf I hym a copel of maynchetts with swete butter. **1486** BK. ST. ALBANS *Fvja*, A Couple or a payer of bottilis. **1526** ACT. 28 HEN. VIII in *Stat. Ire.* (1621) 77 After the rate of fifteen shillings the couple of corne. **1535** COVERDALE *Judith* xix. 3 A seruaunt and a couple of asses. **1541** R. COPLAND *Guydon's Quest. Chirurg.* Howe many coupleys of sensyfe synewes come fro the brayne. **1570** ASCHAM *Scholem.* Pref. to Rdr. (Arb.) 20 Though they three do cost me a couple of hundred pounds by yeare. **1599** SHAKS. *Much Ado* III. v. 34 A couple of as

arrant knaues as any in Messina. **1611** BIBLE 2 SAM. xiii. 6 Make me a couple of cakes. **1638** BROME *Antip.* IV. viii. These persons passe over the Stage in Couples. **1711** STEELE *Spect.* No. 8 P1, I shall here communicate to the World a couple of letters. **1867** LADY HERBERT *Cradle L.* vii. 194 We spent a couple of hours resting and exploring the ruins. **1885** *Law Times* LXXX. 111/1 The rule.. has existed for at least a couple of centuries.

b. (With of omitted) = couple of (cf. COUPLE; U.S. colloq.).

1925 S. LEWIS *Martin Arrowsmith* xv. 188 A couple months in Italy. **1934** D. HAMMETT *Thin Man* xxii. 173 She touched me for a couple hundred to blow town.

c. Quasi-adj. *a couple more* (..), two more (colloq.).

[1934] P. A. TAYLOR *Sandbar Sinister* vi. 92 'Just you hang on for a couple minutes more.' Asey promised her.] **1661** H. STONE' *Man who looked Death in Eye* iii. 57 The crowd of curious onlookers gathered in the street and a couple more cops to hold them at a decent distance. **1665** A. LURIE *Nowhere City* xii. 123 I wonder if I could dictate a couple more letters then, while we wait? **1985** *Washington Post* 4 Jan. A13/4 It's going to be a couple more months.. before we decide what to do.

d. With ellipsis of of drinks, of glasses, etc. colloq.

1933 R. KEVERNE *Menace* xvi. 180 Stopped at the 'Swan' for a couple. **1934** H. M. HARWOOD *Old Folks at Home* i. i. *Liza* (coldly) I said you had had a couple.

8. One of a pair of inclined rafters or beams, that meet at the top and are fixed at the bottom by a tie, and form the principal support of a roof; a principal rafter, a chevron.

[Cf. **c600** ISIDORE *Orig.* xix. xix. 6 Cuplae [v.r. coplae, comple] vocate, quod copulent in se lactantes.]

1364 DURH. *Halm. Rolls* (Surtees) 31, j. dormum sufficientem de ij copulis. **c1380** *Sir Ferumb.* 1328 Al pe coples cipres were & pe raftres were al-so. **c1425** *WYNTOUN Cron.* ix. vi. 163 Twenty cuppil he gave or ma, to pe body or pe kirk alsua. **1572** BOSWELL. *Armorie* ii. 75 An house is never made perfect, till these coples be put vpon it, by the maner of an heade. **1659** *WILLSFORD Scales Comm.* Archit. 12 At every joyn a collar-beam, fastned at their heads with a pin onely; these last by some are called the Arch-couples. **1796** *Statist. Acc. Scotl.* XVII. 140 (Jam.) The oak couples were of a circular form, lined with wood. **1688** G. MACDONALD R. *Falconer* I. 97 The other [room], showing the naked couples from roof-tree to floor. **1888** *ELWORTHY W. Somerset Word-bk.* s.v. A 'half-couple' is a single main timber, such as would be used in a 'lean-to' roof.

† 9. = COUPLET 1. Obs. rare.

c1330 R. BRUNNE *Chron. Wace* (Rolls) 102 Sir Tristrem; ouer gestes it has pe steem.. if men it sayd as made Thomas; But I here it no man so say, bat of som copple som is away.

1423 JAS. I. *Kingis Q.* xxxvii, All the gardyn and the wallis ryght of thaire song, and on the copill next Off thaire sute armory. **1589** PUTTENHAM *Eng. Poesie* II. x. (Arb.) 99 By distick or couples of verses agreeing in one cadence.

10. Dynamics. A pair of equal and parallel forces acting in opposite directions, tending to produce a motion of rotation.

1855 PEIRCE *Anal. Mechanics* 40 A couple of forces is a system of two parallel and equal forces which act in different lines of the couple with which terrestrial magnetism tends to turn the.. magnet.

fig. 1887 *Blackw. Mag.* Sept. 293/1 The central 'couple', as the Mathematicians would call it, of the European balance.

11. Geom. (See quot.)

1881 C. TAYLOR *Geom. Conics* 257 If three or more pairs of points *A, A', B, B', C, C'*, etc. be taken on a straight line at such distances from a point *O* thereon that *OA · OA' = OB · OB' = OC · OC'*, etc., they are said to constitute a system in Involution.. the points *(A, A')(B, B')(C, C')*, etc., are called Conjugate Points or Couples of the involution.

12. Electr. A pair of connected plates of different metals, used for creating either a galvanic or a thermo-electric current.

1863 TYNDALL *Heat* i. App. (1870) 17 The figure represents what is called a thermo-electric pair or couple.

1863-72 WATTS *Dict. Chem.* II. 415 The system of two dissimilar metals immersed in a liquid which acts on one of them is called a *Galvanic* or *Voltaic Couple*. **1885** WATSON & BURBURY *Math. Th. Electr. & Magn.* I. 240.

13. Astron. A double star.

14. attrib. and comb., as couple-balk (Sc.), cf. sense 8 and BALK sb. 11; couple-keep (see quot.).

1843 BETHUNE *Sc. Fireside Stor.* 113 The wooden framework of an old bed.. was brought down from the couple-balks of the barn. **1888** *ELWORTHY W. Somerset Word-bk.* *Couple-keep* is often to be found in advertisements. It means a good crop of early grass fit for ewes and lambs, which must be well fed.

couple ('kap(ə)l), v. Forms: 3 kuple, 3-5 couple, 4 copil, cuppel, -ul, 4-5 coupel, -il, -yl, cowpyll, cupplile, 4-6 couple, couple, coupplil, 4-7 couple, cupple, 6 couple, 4- couple. [a. OF. *copler, cupler, later coupler*, f. *couple*: see prec. and cf. L. *copulare*.]

1. trans. To tie or fasten (dogs) together in pairs.

c1340 *Gaw. & Gr. Knt.* 1139 benne pise cacheres pat couple coupled hor houndez. Vncluded pe kensel dore, & calde hem per-oute. **c1440** [see COMPLE v.2]. **1486** BK. ST. ALBANS Bii b, Couple vp yowre houndys. **1596** SHAKS. *Tam. Shr.* Ind. i. 18 Couple Clowder with the deepe-mouth'd brach. **1602** 2nd Pt. *Return fr. Parnass.* II. v. (Arb.) 32 The Huntsmen hallowed, so ho, Venue a coupler, and so coupled the dogges. **1709** STEELE *Tatler* No. 37 P2 Tom. Bellfry and Ringwood were coupled together.. to be in at the Death

of the Fox, Hare, or Stag. **1859** JEPHSON *Brittany* ix. 147 They [the dogs] were all coupled.

2. a. gen. To fasten or link together (properly in pairs); to join or connect in any way.

c1330 R. BRUNNE *Chron. Wace* (Rolls) 88 If it were made in ryme couwe.. pat rede Inglis it ere inow, pat couthe not haf coppeld a kowe. **1382** *WYCLIF Isa.* v. 8 Wo that ioynen hous to hous, and feeld to coupleth. **1432-50** tr. HIDDEN (Rolls) I. 135 The superior Scythia is a grette region..

coplede of the este parte to Ynde, of the northe to the ocean. **1475** *Rauf Coilear* 43 With ane Capill and twa Creillis cuplin abufe. **1535** COVERDALE *Isa.* xxiv. 22 These shalbe coupled together as prisoners be. **1600** *HAULKYU Voy.* (1810) III. 566 They bound our armes behid vs.. coupling in pairs and two together. **1665** SIR T. HERBERT *Trav.* (1677) 64 These [places] Eobar coupled to the rest of his Empire, a **1744** POPE (J.). That man.. who is measuring syllables and coupling rhimes, when he should be mending his own soul. **1819** SHELLEY *Cyclop* 202, I see my young lambs coupled two by two With willow bands.

† b. To take (a horse or cart). *Obs.*

a1300 *Cursor M.* 6220 (Cott.) His folk all armed did he call. And cuppel did his cartes all. **1393** LANGL. *P. Pl. C. III.* 190 Let cople pe commissarie, oure cart shal he drawe.

c. Organ-playing. To connect (two keys or keyboards) by means of a coupler. Also *intr.* (of a key or keyboard)

1829 *Organ Specif.* in *Grove Dict. Mus.* II. 599/1 Pedal to couple Swell to Great. **1880** *Ibid.* 601/2 When the Swell was coupled to the Great Manual.

d. Mech. To connect (railway carriages) by a coupling; to connect (the driving-wheels of a locomotive steam-engine) by a coupling-rod.

1841 *Penny Cycl.* XIX. 249/1 The two pair of wheels [of a locomotive engine] were coupled together by connecting rods. **1864** *Law Times Rep.* X. 719/1 Trucks.. filled with ballast.. were coupled together and carried away by an engine. **1874** *KNIGHT Dict. Mech.* s.v. *Car-coupling*, in Europe the connection is more intimate, the cars being coupled together so firmly as to prevent the jar as the cars collide or jerk apart in stopping or starting.

e. Photogr. To connect a device (as a rangefinder, etc.) to the mechanism of a camera. Also *intr.* to be capable of being so connected.

1934 R. M. FANSTONE *Mod. Miniature Cameras* ii. 7 This camera has automatic focussing by means of a range finder coupled to the focussing adjustment of the lens. **1935** W. ALEXANDER *Miniature Camera Guide* p. i (Advt.). Leica Model III. Automatically coupled range-finder focusing.

1939 *Amer. Ann. Photogr.* 1940 7/2 These new, small cameras were characterized by their versatility and built-in features, such as: range finders coupled to the lens and shutter assembly. **1968** *Amateur Photogr.* 31 Dec. 8/3 (Advt.), Rangefinder couples with all lenses. **1961** A. L. M. SOWERBY *Dict. Photogr.* (ed. 19) *Coupled exposure-meter*, an exposure-meter the mechanism of which is linked to the controls adjusting stop and shutter-speed.

† 3. a. To join in wedlock or sexual union. *Obs.*

a1340 *HAMPOLe Psalter* xviii. 5 God til mankynd as spouse til spouse is copild. **1375** *BARBOUR Bruce* IV. 41 Dame mariory wes couppily in-to goddis band with Walter stewart off Scotland. **1450-1530** *Myrr. our Ladie* 112 Borne of a woman that was carnally coupled unto hym. **1485** *CAXTON St. Wene*, 2, I am coupled in matrimony to the sonne of the everlastyn kyng. **1535** COVERDALE *Mark* x. 9 Let not man therfore put asunder that which God hath coupled together. **1549 Bk. Com. Prayer, Solemn. Matrim.** If any man do allege any impediment why they may not be coupled together in matrimony. **1600** SHAKS. *A.Y.L.* III. iii. 45 The Vicar of the next village.. hath promis'd to.. couple vs. **1726** *SWIFT Let. to Pope* 17 Nov. 369 To assist.. in degrading a parson who couples all our beggars. **1749** *FIELDING Tom Jones* XVIII. ix. As eager for her marriage with Jones as he had before been to couple her to Blifil.

b. To espouse, marry. *Obs.*

c1400 *Destr. Troy* 1275 Clunestans at kirke couplint onome This Engest, with Jolite to hir iuste spouse.

c. To pair (animals).

1721 R. BRADLEY *Wks. Nat.* 91 If a Sow of that Breed is Coupled with a Boar of the Cloven-footed kind. **a1754** FIELDING *Fathers* v. v., Wedding! directly! what, do you think you are coupling some of your animals in the country?

4. intr. (for refl.). To unite with one of the opposite sex, come together sexually; to pair.

1362 LANGL. *P. Pl. A. x.* 153 To kepe his cu from Caymes pat pei coupled not to gedere. **1547** *SURREY* Aeneid IV. 35 He that with me first coupled too gayed with him. **1590** SHAKS. *Mids. N.* IV. i. 145 Begin these wood birds but to couple now? **1664** EVELYN *Kal. Hort.* (1720) 194 Furnish.. your Aviaries with Birds before they couple. **1671** MILTON P.R. II. 18. **1724** GOLDSM. *Nat. Hist.* (1776) IV. 96 They [moles] couple towards the approach of spring. **1869** TENNYSON *Pelæas & E.* 526 Why then let men couple at once with wolves!

5. a. trans. To associate or bring together (persons) in pairs, or as companions or partners; formerly also, to match or engage as opponents in a contest.

1362 LANGL. *P. Pl. A. iv.* 132 Clerkes pat were confessours coupled hem to gedere Forte construe pis clause. **c1400** *Ywaine & Gaw.* 3596 Thai saw never under the hevyn Two Knights that war copled so evyn. **c1489** *CAXTON Sonnes of Aymon* xvii. 392 Or ever they lefte ech other goo, when they were coupled ones togidre [wrestling]. **1526** *TINDALE Acts* ix. 26 He assayde to cople hym silfe with the apostles. **1583** *STOCKEN Hist. Civ. Wars* Lowe C. II. 58 a, Iohn Montiew, as he was coupled to the enemie, was slain with an Harquebouze shot. **1684** *OTWAY Atheist* I. i. When the rest of the Company is coupled. **1822** WORDSW. *Eccles. Sonn.* II. xxxiv. Latimer & Ridley. See Latimer and Ridley in the fight Of Faith stand coupled for a common flight!

b. To attach or unite by ties of affection, or the like.

1362 LANGL. *P. Pl. A. xi.* 116 Ryd forp bi Richesse.. For if pou couple pe to him, to Clergie comestou neuere. **c1430**

COUPLEABLE

1049

Hymns Virg. (1867) 22 For euere loue coupli god to man. **1526** TINDALE *N. T. Prol.*, The sprynte of god, whiche .. copyleth us to god. **1548** HALL *Chron.* 171 Although the bodies of these noble personages .. were .. a sonder separated .. yet their hertes were knitte and coupled in one.

† **c. to couple friendship:** a Latinism. **to couple a skirmish** (cf. *to join battle*). *Obs.*

1382 WYCLIF *Eccl.* xxxvii. 1, I frenshipe couplede [1388 Y haue couplid frenschip]. **1583** STOCKER *Hist. Civ. Warres Lowe C.* ii. 66a, A skirmishe beganne to be coupled betwene the Roiters of the Wood and the Roiters of the Enemie.

6. **intr.** To join or unite with another as a companion, to come together or associate in pairs; † to engage (with another) in a contest.

1477 CAXTON *Jason* 39b, Ther were none so hardy that durst .. cope with him. **1548** HALL *Chron.* 182b, The quene beyngh therof asserted, determined to couple [i.e. join battle] with hym whyle his power was small and his ayde not come. **1871** B. TAYLOR *Faust* (1875) II. i. iii. 21 They crowding come, I see, already, Close coupling, or withdrawn unsteady.

7. a. **trans.** Of things immaterial: To connect, conjoin, link (one with or to another, or together). Properly of two things only.

a 1225 Leg. *Kath.* 1059 burh pet he wes soð god, in his cunde icuplet wið ure. **a 1300** *Cursor M.* 18804 (Cott. B. 1. 1. 158) Clergye an Coueteis heo [Meed] coupled to-gedere. **1375** BARBOUR *Bruce* i. 236 The wretched dome, That is couplet to foule thyrdome. **1526** TINDALE *1 Pet.* iii. 2 Whill they beholde your pure converasacion coupled with feare. **1597** HOOKE *Eccl. Pol.* v. lxvii. § 10 He hath coupled the substance of his flesh and the substance of bread together. **1727-38** GAY *Fables* i. xii. 48 Ay'rece .. Must still be coupled with its cares. **1847** EMERSON *Repr. Men, Montaigne Wks.* (Bohn) I. 342 A biblical plainness, coupled with a most uncanonical levity. **1874** DIXON *Two Queens* III. xiii. x. 57 A man who coupled acts with words.

b. To conjoin in thought or speech.

a 1225 ANCR. R. 78 Isiae ueið hope & silence, & kуплe бoгo тoдeгe. **1581** J. BELL *Haddon's Answ. Osor.* 489, Neither did he so couple you to the College of Philosophers, and Oratours. **1751** JORTIN *Serm.* (1771) IV. i. 5 Theft and swearing are coupled together in the Prophet Zechariah. **1826** SOUTHEY *Vind. Eccl. Engl.* 253 To this let me couple the just complaint of .. Melchior Canus. **1866** MRS. RIDDELL *Race for Wealth* xxiii. 1, I wish you would not couple her name and mine together.

8. **Physics.** To bring about a coupling (sense 6f) between. So **coupled** *ppl. a. a.* Said of oscillating systems. (Cf. COUPLING *vbl. sb.* 6 f (i).)

1803 Proc. R. Soc. LIV. 76 Its coils (coupled inductively) were connected in series with the non-inductive coils of the inactive ring. **1908** [see COUPLING *vbl. sb.* 6 f (ii)]. **1915** A. F. COLLINS *Bk. of Wireless* III. iv. 143 When the open and closed circuits are coupled together they can be tuned to each other so that the electric oscillations in both circuits .. have the same frequency. **1927** E. G. RICHARDSON *Sound* ii. 54 Owing to the assumption of the vibration by the air in the box the tone of the combined 'coupled system' is much more intense than that of the fork alone. **1927** I. B. CRANDALL *Theory Vibr. Syst.* ii. 63 A very considerable change in natural frequencies .. has been brought about by coupling to the heavy diaphragm a relatively light resonator system. **1944** A. WOOD *Physics of Music* ii. 24 Two pendulums of unequal length suspended from a horizontal string .. form a coupled system. **1962** SIMPSON & RICHARDS *Junction Transistors* xiv. 341 The primary and secondary circuits are tuned separately to resonance at the same frequency and coupled together. **1965** H. J. J. BRADDICK *Vibrations, Waves, & Diffraction* i. 26 Two oscillators may be coupled in such a way that when one is vibrating, motion is transferred to the other. **1968** C. G. KUPER *Intro. I.* 55 Coupled columns of nearly three feet diameter each. **1881** FREEMAN *Subj. Venice* 108 A grand range of Romanesque coupled windows, bearing date 1250.

c. Joined in marriage.

1672 *Esses Papers* (Camden) I. 38 After they have married persons, the coupled, on discontents, part, and pretend they were not legally married.

d. See COUPLE *v. 8.*

† 2. Built with couples or rafters, roofed. *Obs.* (See COUPLE *sb.* 8.)

1382 WYCLIF *Haggai* i. 4 That 3e dwelle in housis couplid with tymbre [Vulg. *in domibus laqueatis*].

3. In combination, as **well-coupled, short-coupled:** said of the joining of the back to the hind-quarters in horses, etc. Also in reference to roof-couples.

1641 BEST *Farm. Bks.* (Surtees) 100 Horses that are short coupled and well-backed. **1649** G. DANIEL *Trinarch. Hen. V.* cclxxxv, The well-rai'st Arch of Honour! where noe Act of Fame misplac't, Firms him, well-coupled, from the sure-lay'd Base. **1720** W. GIBSON *Diet Horses* viii. (ed. 3) 120 Many of our best ambling nags are well coupled, and for the most part durable on a journey. **1828** SCOTT *F.M. Perth* viii. A strong black horse .. high-shouldered, strong-limbed, well-coupled, and round-barrelled.

¶ **Erroneously for CUPOLAED,** having a cupola.

1615 G. SANDYS *Trav.* 33 The Ottoman Mauseoleas .. built all of white marble, round in forme, coupled on the top.

1665 SIR T. HERBERT *Trav.* (1677) 120 'Tis covered at top, arched and coupled after the mode of those oriental Countries.

† **couplement** ('kapləmənt). *Obs.* Also 7 **coopel-, couple-, cupple-,** [a. OF. *couplement*: see COUPLE *v.* and -MENT; cf. ACCOUPLEMENT.]

1. The act of coupling or fact of being coupled together; union of pairs.

1548 HALL *Chron.* Hen. VII, an. 16. 52b, By this conjuncyon and couplement of matrimony. **1596** SPENSER *Prothal.* vi, Ioy may you haue and gentle hearts content Of your loues couplement. **c 1600** SHAKS. *Sonn.* xxi, Making a couplement of proud compare With Sunne and Moone, with earth and seas rich gems. **a 1670** HACKET *Abp. Williams* II. (1692) 140 He me with all sort of brain-sick factions combined in one couplement.

2. The result of coupling. a. A couple, pair.

1588 SHAKS. *L.L.L.* v. ii. 535, I wish you the peace of minde, most royal couplement. **1596** SPENSER *F.Q.* vi. v. 24 And forth together rode, a comely couplement. **1816** SOUTHEY *Lay of Laureate, Dream* 70 Anot two female forms .. Came side by side, a beauteous couplement.

b. Of verses: A couplet or stanza.

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3. Anything that couples together; a coupling.

1622 F. MARKHAM *Bk. War* iii. x. § 5 Ordnance ready mounted with all their Coouplements, Ornaments, Tires.

coupler ('kaplə(r)). [f. COUPLE *v.* + -ER¹.]

1. One that couples; spec. one whose business it is to couple railway carriages or trucks.

this scandalous trade, which he had taken up, to the undoing of many good families.

couple-clause. Coupling of clauses; a name given by Puttenham to the rhetorical figure *Polysyndeton*.

1589 PUTTENHAM *Eng. Poesie* iii. xvi. (Arb.) 186 Another maner of construction which they called (*Polysyndeton*) we may call him the (*couple clause*) for that every clause is knit and coupled together with a coniunctive.

couple-close. Also -closs. [app. f. F. *couple + close* closed, shut.]

1. *Her.* A diminutive of the chevron, having one fourth of its breadth, borne in couples, and usually cotising a chevron.

1572 BOSWELL *Armorie* 12 A Copleclose muste containe the fourth part of the Cheuron, and is not borne but by payres, except there be a Cheuron between two of them. **1864** BOUTEL HERALD *Hist. & Pop.* xxi. (ed. 3) 363 A chevron between two couple-closes sa. **1868** CUSSANS *Her.* iv. 57 The term Cotising is applied indifferently to Costs, Barrelets, and Couples-close.

2. A pair of rafters or couples in a roof. (See COUPLE *sb.* 8.)

1849 J. WEALE *Dict. Terms, Couple-close*, a pair of spars of a roof. **1864** in WEBSTER.

coupled ('kapləd), *ppl. a.* [f. COUPLE + -ED.]

1. Tied, joined, linked, or associated together in pairs. In *Her.* = CONJOINED C.

1440 *Propri. Parv.* 99 Cowplyd, *copulatus*. **1598** SYLVESTER *Du Bartas* II. i. iv. 614 Thou .. that things to come dos't know Not by .. coupled points, nor flight of fatal Birds. **1621** LADY M. WROTH *Utrania* 361 The rest .. came coupled, Polarchos and his soone wonne Lady, etc. **1709** WATTS *Lyric Poems, Adventurous Muse v.* His verse sublime A monument too high for coupled sounds to climb. **1869** Eng. *Mech.* 19 Mar. 579/2 The coupled wheels [of a locomotive] were .. equally loaded. Six-wheeled coupled engines had from 5 tons to 6 tons on a wheel.

b. *Arch.* **coupled columns:** columns disposed in pairs close together, with wider intervals between the pairs. **coupled windows:** windows placed side by side, forming a pair: cf. COUPLET 3.

1731 BAILEY (vol. II) s.v. *Column, Coupled Columns*, are such as are disposed by two and two, so as almost to touch each other at their bases and capitals. **1842-76** GWILT *Archit.* § 267 The use of coupled columns and niches exhibits other varieties in which the Romans delighted. **1879** SIR G. G. SCOTT *Lect. Archit.* I. 55 Coupled columns of nearly three feet diameter each. **1881** FREEMAN *Subj. Venice* 108 A grand range of Romanesque coupled windows, bearing date 1250.

c. Joined in marriage.

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1. The act of coupling or fact of being coupled together; union of pairs.

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coupler ('kaplə(r)). [f. COUPLE *v.* + -ER¹.]

1. One that couples; spec. one whose business it is to couple railway carriages or trucks.

COUPLET

1552 HULOET, Coupler, *copulator*. **1748** SMOLLETT *Rod. Rand.* xi. (1804) 58 No such creature as you neither—no ten pound sneaker nor quality coupler. **1774** PENNANT *Tour Scot.* in 1772 (1790) II 95 Those infamous couplers despise the fulminations of the Kirk. **1885** MANCH. *Exam.* 15 May 5/7 Couplers [of railway carriages or trucks] .. expose themselves to danger in shunting operations.

2. A thing that couples or links together. *spec.* a. In an organ: A contrivance for connecting two manuals, or a manual with the pedals, or two keys an octave apart on the same keyboard, so that both can be played by a single motion.

1668 CULPEPPER & COLE *Barthol. Anat.* iii. viii. 144 The Orbicular Muscle only moves the upper Eye-lid, and doth but embrace the lower, and knit it as a coupler. **1849** *Penny Cycl.* XVI. 402/1 These several parts, or organs, when brought together by stops, called *couplers*, give to the keys of the great organ the command of every pipe in the instrument. **1871** *Pall Mall G.* 29 Mar. 8 The organ .. is fitted with 125 stops and 32 couplers.

b. (See quot.) Also = COUPLING.

1874 KNIGHT *Dict. Mech.* *Coupler* .. 2. The ring which slips upon the handles of a crucible tongs, or a nipping-tool of any kind. Also called *reins*.

c. *Zool.* A plate joining two opposite swimming appendages of a crustacean.

1897 PARKER & HASWELL *Zool.* I. 530 The first four thoracic appendages bear biramous swimming feet .., those of the right and left sides being connected by transverse plates or couplers.

d. *Photogr.* (See quotes.)

1938 BRIT. *Jnl. Photogr.* LXXXV. 628/1 The dyestuffs forming the images are in all cases produced by the effect of an oxidising agent on a mixture of a suitable agent and coupler .. In some instances the developer and the coupler may be identical. **1944** J. S. FRIEDMAN *Hist. Color Photogr.* xi. 127 The true problem .. is not the inability to obtain uniform dispersions of the couplers throughout the emulsion, but to prevent the couplers in one emulsion layer from wandering over into a neighboring layer. **1957** R. W. G. HUNT *Reprod. Colour* v. 45 Instead of letting the oxidized developer react with the gelatin of the emulsion, a coupler is present in the developer (or in the emulsion layer) and this reacts with the oxidized developing agent to form an insoluble dye. **1966** D. M. AVEDON *Gloss. Terms Microphotogr.* (ed. 4) 13 In a diazo material the coupler is a compound which combines with the unexposed diazonium salt to form the visible dye image.

e. In full **acoustic coupler.** A modem for converting digital signals from a computer into an audible sound signal and vice versa so that they can be transmitted and received over telephone lines; *spec.* a sound-absorbent cradle, incorporating a microphone and loudspeaker, into which a telephone handset is placed.

1968 N. Y. *Times* 26 June 70 Each client will get a portable teletype and a thing called an 'acoustic data coupler' that allows the teletype to send messages to a computer over any old telephone. **1969** *Mechanised Accounting* Oct. 9/1 The Post Office has agreed to the introduction of suitably approved acoustic couplers, devices capable of turning almost any modern telephone into a data transmission terminal. **1978** *Pract. Computing* July-Aug. 56/2 The coupler converts pulses of sound. **1984** *Daily Tel.* 24 Apr. 16/4 Comtec Data Systems is selling the machine and acoustic coupler (on which you rest the telephone handset for communications) as a package in a handsome briefcase for £397.

coupleress ('kaplərəs). *rare.* [f. prec. + -ESS.] A female coupler; a woman who brings couples together.

1864 W. BELL in N. & Q. V. 442 These old witches were frequently bawds and coupleresses at Rome. **1885** R. F. BURTON *1001 Nights* I. 338 note. So the Germ. 'Kupplerin', a Coupleress. It is one of the many synonyms for a pimp.

couplet ('kaplət). Also 7 **cop-, cup-,** (? *caplet*). [a. F. *couplet* (1364 in Godefroy) two pieces of iron riveted or hinged together, succession of verses riming together, stanza, etc., dim. of *couple*.]

1. A pair of successive lines of verse, *esp.* when riming together and of the same length.

1580 SIDNEY *Arcadia* (J.), In singing some short couplets, whereto the one half beginning, the other half should answer. **a 1649** DRUMM. of HAWTH. *Conv. w. Jonson Wks.* (1711) 225 It is all in couplets, for he detected all other rhymes. **1780** JOHNSON *L.P.*, *Congreve Wks.* III. 171 Except what relates to the stage, I know not that he has ever written a stanza that is sung, or a couplet that is quoted. **1866** ROGERS *Agric. & Prices* I. xxiv. 615 A popular notion, embodied in a rhyming couplet. **1889** SKEAT *Chaucer's L.G.W.* Introd. 33 He introduces a new metre .. now famous as 'the heroic couplet'.

2. *gen.* A pair or couple; in *pl.* = twins (quot. 1824, *nonce-use*; cf. *triplets*).

1601 SHAKS. *Twel. N.* III. iv. 412 Weel whisper ore a couplet or two of most sage sawes. **1602** — *Ham.* v. i. 310 As patient as the female Doue, When that her golden Cuplet [Qy. couplets] are disclos'd. **1824** Miss MITFORD *Village Ser.* i. (1863) 161 Their very nurse, as she used to boast, could hardly tell her pretty 'couplets' apart.

3. *Arch.* A window of two lights.

1844 *Ecclesiologist* III. 149 The church is lighted with four couplets and a half on each side. **1879** SIR G. G. SCOTT *Lect. Archit.* I. 251 The couplets, triplets, and more numerous groups of the Early English windows.

4. *Music.* Two equal notes inserted in a passage of triple rhythm and made to occupy the time of three.

1876 in STAINER & BARRETT *Dict. Mus. Terms.*

† 5. A coupling, link, or chain. *Obs. rare⁻¹.*

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Prepared by
J. A. SIMPSON and E. S. C. WEINER

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SECUNDUM

Poland, even if it were to be placed under Austrian secundogeniture, will... on no account be consented to by Germany. **1910** *Nation* 22 Jan. 672/2 If the same hypnotism could be transferred to the second or the third son, secundogeniture or tertigeniture would rest on a firmer basis than does primogeniture to-day.

secundum (sik'kündəm). [L., according to; orig. neut. accus. of *secundus* SECOND *a.*] Used in various med. Latin phrases, sometimes occurring in Eng. contexts. *secundum artem* (= Gr. *κατὰ τὴν τέχνην*): 'according to art', in accordance with the rules of the art (chiefly of medicine; often jocularly *transf.*). *secundum idem*, 'according to the same argument, calculation, etc.', in the same manner or respect. *secundum magis et minus* (= Gr. *κατὰ τὸ μᾶλλον καὶ ἄπλον*): 'according to more and less'; in a quantitative manner or respect; in various degrees. *secundum naturam* [Cicero; = Gr. *κατὰ φύσιν*]: according to nature, naturally. *secundum quid* [= Gr. *κατὰ τι*]: 'according to something', in some particular respect only (opposed to *simpliciter*, Gr. *ἀπλῶς*).

1632 B. JONSON *Magn. Lady* III. iv. *Rur.* That is my course with all my Patients. *Pal.* Very methodical, *Secundum Arten*. **1675** HAN. WOOLLEY *Gentlew. Companion* 68 A Cods-head... drest *secundum artem*. **1815** SCOTT *Guy M.* iv. He undertook the task [sc. of calculating a nativity] *secundum artem*. **1856** 'STONEHENGE' *Brit. Rural Sports* III. iv. 176/2 The kennel-man of the dog will set to everything being done, *secundum artem*.

1666 J. SERGEANT *Method to Sci.* 390 To Affirm that the Atom is Chang'd according to One of those Different Regards or Notions, *vis.* the Form, and Not-chang'd according to the Other, viz the Matter, has not the least show of Affirming and Denying *secundum idem*; nor, consequently, the least show of a Contradiction. **1805** S. HODGSON *Time & Space* ii. 140 The two objects are then not limited and unlimited *secundum idem*. **1882** W. JAMES in *Mind* Apr. 187 The union and the division are not *secundum idem*: it divides them by keeping them out of the space between, it unites them by keeping them out of the space beyond.

1621 BURTON *Anat. Mel. Democ.* to Rdr. 14 Alexander, Gordouius... [and others] confound them, as differing *secundum magis & minus*. [Note, More or lesse, some madder then some.] **1837** MACAULAY *Ess., Bacon* (1807) 409 He might have gone on to instances *secundum magis et minus*. **1563** T. GALE *Inst. Chirurg.* 16 Theis. vj. thinges which are *secundum naturam*, spring of vii. natural things entring the composition of mans body. **1754** GRAY'S *Inn Jnl.* No. 76 (1756) II. 153 The modern Hero grafts his Happiness on the Passions... and in that Sense may be said to live *secundum naturam*.

1619 S. NORRIS *Antidote* II. vi. (1622) 232 Our aduersaries make answer... that heauen is called a Crown, a reward *secundum quid*, and in a respect [...] simply and absolutely it is only a gift, because it is given according to grace. **1693** LOGIC or *Art of Thinking* (ed. 2) 332 Human form... being a Perfection only *secundum quid*, or in some respect and not simply, it does not follow that it ought to be the shape of God.

secundus (sik'kündəs), *a.* [L. *secundus* SECOND *a.*] Appended to a personal name: The second of a name. In some schools used to designate the second in age or seniority of two boys having the same surname.

1826 DISRAELI *Viv. Grey* I. iii. 'What a knowing set out', squeaked Johnson *secundus*. 'Mammy-sick' growled Barlow *primus*. **1827** FLEMING *Brit. Zool. Pref.* 11 The University of Edinburgh possessed, in Dr Monroe *secundus*, a comparative Tribut. xi. 27 Having our party of servants complete, six Tokoroos... with Mahomet,.. Mahomet *secundus* (a groom), and Barraké. **1887** *Athenaeum* 12 Mar. 350/2 Two excellent volumes... The former contains some sensible advice... by Robert Chambers *secundus*.

secur. obs. form of SICKER *a.*

securable (sik'kjooərbəl), *a. rare.* [f. SECURE *v.* + -ABLE.] Capable of being secured. **1846** Q. REV. (Worcester). **1855** in OGILVIE *Suppl.* **1876** TINLEY'S *Mag. XVIII.* 474 Popularity... is always securable by the 'No Popery' cry.

securance (sik'kjooərəns), *rare.* [f. SECURE *v.* + -ANCE.] The action or means of securing; assurance, security.

1642 *Contra-Replicant's Compl.* 8 Such securance is not incompatible with Monarchy. *Ibid.* 22 If the Parliament will undertake to secure the King... what must that securance be? **1652** BP. HALL *Myst. Godliness* x. (1847) 31 For the securance of thy Resurrection... thou hadst spent forty days upon earth. **1871** *MULFORD Nation* vi. 83 It is only with care and steadiness and tenacity of purpose that those guarantees are forged which are the securance of freedom. **1908** *Protestant Observer* Dec. 182/2 Some provision for the securance of Catholic representation on the Senate at the end of the first five years.

secure (sik'kjooə(r)), *sb.* [f. SECURE *v.*] The position in which a rifle or musket is held when it is 'secured': see SECURE *v.* 2 *h.*

1802 C. JAMES *Milit. Dict.* s.v. *Secure arms!* To bring your firelock to the secure, 1st, throw your right hand briskly up [etc.]. *Ibid.* In order to shoulder from the secure, you must [etc.]. **1847** *Infantry Man*. (1854) 20 Bringing the firelock down to the Secure.

SECURE

secure (sik'kjooə(r)), *a. and adv.* [ad. L. *secūrus*, f. *sē-* without (see SE-) + *cūra* care (whence CURE *sb.*).

In the late L. sense 'safe, free from danger', the word passed into the Rom. langs.: F. *sûr* (OF. *sûr*, whence SURE *a.*), Pr. *segur-*, Sp. *seguro*, It. *sicuro*; it was also early adopted in WGER., and hence appears in Eng. as SICKER *a.*]

A. adj.

I. Feeling no care or apprehension.

1. Without care, careless; free from care, apprehension or anxiety, or alarm; over-confident. Now arch. *a.* In predicative use. In earlier instances often contrasted with *safe*.

? **1533** LATIMER *Let. to Morice* in FOXE *A.* & *M.* (1583) 174/2 But we be secure and vncarefull, as though false Prophets could not meddle with vs. **1579** LYLY *Euphues* (Arb.) 143 And if after these pastimes shee shall seeme secure, nothing regarding her bookees, I woulde not haue him scoured with stripes, but threatened with wordes. **1587** T. HUGHES *Misf. Arthur* I. iv. Mischife is sometimes safe; but n'er secure. **1641** QUARLES *Enchir.* iv. lxiii. (1654) T. 1, When the Devil bringes thee Oyle, bring thou Vinegar. The way to be safe, is never to bee secure. **1667** D. FOULIS *Let. in Slingsby's Diary* (1836) 374 God deliuer us out of these troubles & make us more vigilant & lesse secure for ye future. **1700** EVELYN *Diary* 20 Oct. 1674, He told me 10,000 men would easily conquer all the Spanish Indies, they were so secure. **1758** S. HAYWARD *Serm.* vii. 543, I had been now amongst the thoughtless crowd,.. absolutely ignorant and secure. **1771** WESLEY *Wks.* (1872) V. 99 Because he is blind, he is also secure. **1806** A. MURRAY *Let. in Constable & Correspondents* (1873) I. 253 We may expect that he [Bonaparte] will attack us as much as he is in power. With respect to the issue of that we have not much to fear, and yet we have no cause to be too secure. **1827** KEBLE *Chr. Year, St. Philip & St. James* 25 Youth's lightning flash of joy secure Pass'd seldom o'er His bright. **1841** J. H. NEWMAN *Serm.* vi. 87 Those who have long had God's favour without cloud or storm, grow secure. **1859** MACAULAY *Hist. Eng.* xxiii. (1861) V. 10 They were secure where they ought to have been wary, timorous where they might well have been secure.

b. With various constructions: Free from apprehension of (now only poet.), *concerning*; careless, without anxiety for. *Also with indirect question.*

? **1579** LYLY *Euphues* (Arb.) 144 But seeing the father carelesse what they learne, he is also secure what he teacheth. **1608** WILLET *Hexapla Exod.* 838 The Lord therefore biddeth them to be secure for that matter. **1614** RALEIGH *Hist. World* v. ii. §7. 414 The Illyrian Queene was secure of the Romans, as if they would not dare to stirre against her. **1619** HIERON *Wks.* I. 5 There is no man so secure for his way to mill or to market, as hee is for his way to life eternall. **1625** BACON *Ess., Seditions* (Arb.) 401 Neither let any Prince, or State, be secure concerning Discontentions. **1658** ROWLAND *Mouseth. Theat.* In. 937 The reason why they are so bold and fearlesse, as being secure of any danger. **1697** DRYDEN *Virg. Georg.* I. 427 Ev'n when the Farmer, now Secure of Fear, Sends in the Swains to spoil the finish'd Year... Oft have I seen a sudden Storm arise. **1700** — *Cinyras & Myrra* 27 Secure of Shame because secure of Sight: Ev'n bashful Sins are impudent by Night. **1833** TENNYSON *To J. S.* 76 Lie still, dry dust, secure of change.

c. In attributive use. Now rare or Obs.

? **1584** LODGE *Alarum agst. Usurers* 38b, Alonely lead with careleshe shew of peace, Whereas secure regard doth sinne increase. **1593** SHAKES. *Rich.* II. v. iii. 43 Open the doore, secure foole-hardy King. **1598** — *Merry W.* II. i. 241. *Ibid.* II. ii. 315. **1612** T. TAYLOR *Comm. Titus* II. 12 Our common people, whose extream and secure ignorance, loads them with such a burthen of impietie. **1690** C. NESSE *Hist. & Myst.* O. & N. T. I. 116 In the church militant there must neither be an idle soldier nor a secure labourer. **1729** J. ROGERS *Nineteen Serm.* xii. (1735) 249 This is a Reflection which... should strike Terror and Amazement into the securis Sinner. **1773** GOLDSM. *Stoops to Cong.* v. Do you think I could ever catch at the confident addresses of a secure admirer? *Mar.* (kneeling) Does this look like security?

absol. **1659** W. BROUGH *Sacr. Princ.* 79 When the secure and foolish shall be barr'd and excluded the doors of bliss.

d. Said of times, places, actions: In which one is free from fear or anxiety.

? **1602** SHAKES. *Ham.* I. v. 61 Vpon my secure hower they Uncle stole With iuyce of cursed Hebenon in a Violl. **1604** — Oth. IV. i. 72 Oh, 'tis the spight of hell, the Fiends Archmock, To lip a wanton in a secure Cowch; And to suppose her chast. **1859** GEO. ELIOT *Adam Bede* xxxvii, The bright hearth and the warmth and the voice of home,—the secure uprising and lying down.

e. 2. Free from doubt or distrust; feeling sure or certain. Const. of, also with clause. ? Obs.

? **1579** LYLY *Euphues* (Arb.) 77 Though he be suspitious of my faire hiew, yet is hee secure of my firme honestie. **1595** SHAKES. *John* v. i. 130 And, pretty childe, sleep doubtlesse, and secure. That Hubert for the wealth of all the world, Will not offend thee. **1670** DRYDEN *1st Pt. Cong. Granada* v. ii. Give wing to your desires, and let 'em fly, Secure they cannot mount a pitch too high. **1670** — MARVELL *Corr. Wks.* (Grosart) II. 372 He is secure that nothing will be done by his Majesty. **1688** SHADWELL *Sq. Alsatia* v. 70 How can I be secure you will not fall to your old courses agen? **1713** JOHNSON *Guardian* No. 4 ¶6, I am secure that no man will so readily take them into Protection. **1794** GODWIN *Cal. Williams* 49 He was secure that his animosity would neither be forgotten nor diminished by the interposition of any time or events.

f. b. Confident in expectation; feeling certain of something in the future. Also with infinitive.

? **1653** H. MORE *Antid. Ath.* III. vi. §3 Caesar taking the Ormen... enters Italy, secure of success from so manifest tokens of the favour of the Gods. **1667** MILTON *P.L.* IX. 1175 But confidence then bore the on, secure Either to meet no danger, or to finde Matter of glorious trial. **1686** *tr. Chardin's Trav. Persia* 27 The Grand Vizier, secure of

taking Candy... alter'd all Soliman's Titles. **1725** POPE *Odys.* ix. 498 He... search'd each passing sheep, and felt it o'er, Secure to seize us ere we reach'd the door. **1732** — *Ess. Man* I. 286 Secure to be as blest, as thou canst bear.

II. Having or affording ground for confidence; safe; (objectively) certain.

3. a. Rightly free from apprehension; protected from or not exposed to danger; safe.

The first quot. is a doubtful example of this sense; the original Gr. *ἀσφάλιστος* is literally 'without care or anxiety' (= *sē* above); but the virtual meaning is 'without cause for anxiety, safe'.

? **1582** N. T. (Rhem.) *Matt.* xxviii. 14 And if the President

shal heare of this, we wil persuade him, and make you secure [Vulg. *et securos vos faciemus*]. **1591** SHAKS. *1 Hen. VI.* ii. i. 66 Had all your Quarters been as safely kept,.. We had not been thus shamefully surpriz'd. *Bast.* Mine was secure.

? **1606** WARNER *Alb.* *Eng.* xiv. lxxv. (1612) 352 Yeat oft it

happes, by how much more high Dignities preferre, So much the more, though lesse secure, men live irregular. **1608**

SHAKS. *Per.* i. i. 95 Who has a booke of all that Monarches doe, Hee's more secure to keepe it shut, then shwon. **1646**

SIR T. BROWNE *Pseud.* Ep. i. iv. 15 The devill... would perswade him he might be secure if hee cast himselfe from the pinacle. **1647** COWLEY *Mistr.* *Writ. Juice of Lemon* ii. Alas, thou thinckst thy selfe secure, Because thy form is Innocent and Pure. **1731** SWIFT *Let.* 10 Sept. in *Pope's Wks.* 157 IX. 141 Thus I knew myself on the secure side, and it was a mere piece of good manners to insert that clause, of which you have taken the advantage. **a 1854** LANDOR *Last Fruit of Old Tree* 474 Safe art thou, Louis!.. for a time; But tremble.. never yet was crime, Beyond one little space, secure. **1889** SPECTATOR 21 Dec., England is rich because she has for so many years been secure.

b. Const. against, from, tof.

? **1588** SHAKS. *Tit.* A. i. i. 152 Repose you heere in rest, Secure from worldly chancies and mishaps. *Ibid.* II. i. 3

Now climbeth Tamora Olympus toppe, Safe out of Fortunes shot, and sit aloft, Secure of Thunders cracke or lightning flash. **1697** DRYDEN *Virg. Georg.* III. 579 The Men to subterranean Caves retire; Secure from Cold, and crowd the chearful Fire. *Ibid.*, *Aeneid* vii. 956 Messapus next,.. Secure of Steel, and fated from the Fire, In Pomp appears.

? **1746** FRANCIS tr. *Horace, Art of Poetry* 360, I stand secure from Censure and from Shame. **1781** COWPER *Charity* 510 No skill in swordmanship, however just, can be secure against a madman's thrust. **1796** MORSE *Amer. Geog.* I. 168 Secure from those tempestuous winds, by which the adjoining lake is frequently troubled. **1821** SHELLEY *Adonais* xi. From the contagion of the world's slow stain, He is secure. **1823** SCOTT *Peveril* xix, Which made him suspect that the countess had again employed her mute attendant as the most secure minister of her pleasure on this occasion.

c. Of actions or conditions; Involving no danger; safe.

? **1617** MORYSON *Itin.* III. 9 The most ancient Lawgivers, got the experience, by which they had rule in their Cities, not by secure study at home, but by adventurous travels abroad. **1643** J. M. *Sov. Salve* 9 Such a seeming-secure and supine sleep might have proved a mortall lethargy. **1748**

Anson's Voy. I. ix. 92 This.. would render all that southern navigation infinitely securer than at present. **1819** SHELLEY *Cenci* I. i. 26 He demands at what hour 'twere secure To visit you again? **1881** JOWETT *Thucyd.* I. 134 Inaction is secure only when arrayed by the side of activity.

d. Of an argument, means, agent, etc.: Not liable to fail, trustworthy, safe.

? **1729** J. ROGERS *Seventeen Serm.* v. (1736) 100 But tho' God will accept of a sincere tho' imperfect Obedience, yet this can be no secure Argument to us to remit our Applications. **1823** SCOTT *Peveril* xix, Which made him suspect that the countess had again employed her mute attendant as the most secure minister of her pleasure on this occasion.

e. Of a material thing, a support or fastening: Not liable to be displaced or to yield under strain; firmly fixed, safe.

? **1841** T. R. JONES *Anim. Kingd.* 95 Armed externally with four circles of sharp recurved hooks, which, when plunged into the coats of the intestine, serve as secure anchors by which the creature retains itself in a position favourable to the absorption of food. *Mod.* The bridge does not look secure. Do you think the bolt is secure?

f. Of a telephone (line): free from the risk of being tapped (TAP v. 2 c).

? **1962** in WEBSTER. **1975** B. MEGGS *Matter of Paradise* (1976) v. i. 106, I don't want to say anything more right now; this telephone isn't secure.

4. Of a place, also of means of protection or guardianship: Affording safety.

? **1610** HOLLAND *Camden's Brit.* I. 473 A sure and secure station or place of aboad. **1632** HENRYWOOD *2nd Pt. Iron Age* v. i. Hee stands upon a strict and secure guard. **1634**

MILTON *Comus* 327 In a place Less warrantred than this, or less secure I cannot be, that I should fear to change it. **1660**

F. BROOKS tr. *Le Blanc's Trav.* 30 The Isle hath two good Havens, one in the East, the other in the West, the others are not secure. **a 1700** EVELYN *Diary* 23 June 1665, His dog sought out absolutely the very securest place in all the vessel [during the fight]. **1745** POCOCKE *Descr. East* II. i. 1. 5 The roads would be more secure about the time when the great caravan was passing. ? **1788** COWPER *On Mischief* *Bull* 14, I could pity thee exil'd From this secure retreat. **1818** CRUISE *Digest* (ed. 2) v. 357 It being a common opinion, that a feoffment was the most secure conveyance by which a tenante to the *precepte* could be made.

5. Predicatively: In safe custody; safely in one's possession or power.

? **1591** SHAKS. *1 Hen. VI.* i. iv. 49 In Iron Walls they deem'd

me not secure. **1766** GOLDSM. *Vic. W.* ii. At least till your son has the young lady's fortune secure. **1791** COWPER *Iliad* XVI. 272 He also kept Secure a goblet exquisitely wrought.

6. Free from risk as to the continued or future possession of something; having a safe prospect of some acquisition or desirable event. **†Also**

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with infinitive: Ensured against failure to do something. Cf. 2 b.

1664 TILLOTSON *Serm. i. Wks.* (1714) 22 Consider man without the protection and conduct of a superior Being, and he is secure of nothing that he enjoys in this world, and uncertain of every thing that he hopes for. 1700 DRYDEN *Sigism. & Guse.* 626 For this, she had distill'd, with early Care, The Juice of Simples, friendly to Despair, A Magazine of Death; and this prepar'd, Secure to die, the fatal Message heard. 1705 tr. *Bosman's Guinea* 10 No Body is here secure of Life. 1746 FRANCIS tr. *Horace, Epist. II. i.* 69 Ennius.. Forgets his Promise, now secure of Fame, And heeds no more his Pythagoric Dream. 1758 S. HAYWARD *Serm. Introd.* 17 Oh happy case, when the soul.. boldly ventures into eternity, secure of eternal life. 1770 GOLDSM. *Des. Vill.* 288 As some fair female unadorned and plain, Secure to please while youth confirms her reign. 1788 GIBBON *Decl. & F. xlii. IV.* 548 The zeal of Cyril exposed him to the penalties of the Julian law; but in a feeble government, and a superstitious age, he was secure of impunity, and even of praise. 1825 SCOTT *Talism. vi.* When they seemed most secure of victory. 1863 H. BROUGHTON *Let. in Trevelyan's Compet. Wallah* (1866) 355 For, if they succeed in obtaining her attention, they are secure of her humanity and her justice.

7. Of a possession, acquisition, desirable event, etc.: That may be counted on with certainty; sure to continue or to be attained.

1713 SWIFT *Last Yrs. Q. Anne Wks.* 1902 X. 31 Representing their opinion that no peace could be secure for Britain, while [etc.]. 1819 SHELLEY *Cyclops* 438 Listen then what a punishment I have For this fell monster, how secure a flight From your hard servitude. 1848 THACKERAY *Van-Fair* xxxi. 'If the worse comes to the worst', Becky thought, 'my retreat is secure; and I have a right-hand seat in the barouche'. 1860 TYNDALL *Glac.* i. xviii. 132 We knew that our progress afterwards was secure. 1874 GREEN *Short Hist. viii.* § 2 (1882) 461 At the Queen's accession, the success of the Reformation seemed almost everywhere secure.

B. quasi-adv. and adv. (Chiefly poet.)

c 1592 MARLOWE *Edw. II.* iv. vi. 1893 Your grace may sit secure, if none but we do wot of your abode. 1593 SHAKS. 3 *Hen. VI.* ii. v. 50 All which secure, and sweetly he enioys. 1596 — 1 *Hen. IV.* i. ii. 145 We may do it [the robbery] as secure as sleep. 1611 BIBLE *Judg. xviii.* 7 They dwelt carelesse, after the manner of the Zidonians, quiet and secure. 1633 MASSINGER *Guardian* ii. ii. Sleep you Secure on either ear. 1654 FULLER *Two Serm. ii.* The Structure may still stand.. by vertue of.. such Foundations which still stand secure. 1738 GRAY *Tasso* 15 Against the stream the waves secure he trod. 1784 COPPER *Task vi.* 970 Beneath the shadow of whose vine He sits secure. 1818 SHELLEY *Hymn Venus* 34 Nor mortal men, nor gods Who live secure in their unseen abodes.

secure (sr'kjoo(r)), v. [f. SECURE a. Cf. med. L. *secūrāre, secūriāre*, Sp., Pg. *segurar*, It. *sicurare*]

†1. a. trans. To make free from care or apprehension; also, to make careless or over-confident. Obs. rare.

1604 SHAKS. *Oth. i. iii.* 10, I do not so secure me in the Error, But the main Article I do approue In fearefull sense. 1605 — *Lear* i. 22 Full oft 'tis seene, Our meanes secure vs, and our meene defects Proue our Commodities. 1655 FULLER *Ch. Hist. ix.* 82 [tr. Let. Mary Queen of Scots] To obtain of her, that she will let me go out of her country, whither I came, secured by her promises.

†b. To free from doubt, to satisfy, convince. Also, to make (one) feel secure of or against some contingency. Obs.

1602 CECIL *Let. to Mountjoy* 7 Aug. in *Moryson's Itin.* (1617) ii. 235, I cannot be secured but that he wil st feide that fier with fewel. 1646 H. LAWRENCE *Commun. & War with Angels* 118 Which should encourage us to fight and secure us of the issue. 1666-7 PEPPYS *Diary* 28 Feb., Mr. Holliard [a surgeon] dined with us... I love his company, and he secures me against ever having the stone again. 1668 OWEN *Nat. Indwelling-Sin* viii. 115 Until the soul.. begins to secure it self of pardon in course.

2. To make secure or safe.

a. To make (a person, his life, etc.; rarely a thing) secure from danger or harm; to guard, protect.

Obs. exc. with reference to a specific danger mentioned or implied: see c.

1602 WARNER *Alb. Eng. x. lviii.* (1612) 248 And whilst the Writ in reading was [Mary Q. of Scots] no more regarded it. Then if it had secured or concerned her no whit. 1602 SHAKS. *Ham. i. v.* 116 Mar. Lord Hamlet. Hor. Heauen secure him. Mar. So be it. 1624 CAPT. SMITH *Virginia* Ep. Ded. *Wks. (Arb.)* i. 276 The beautous Lady Tragibazinda, when I was a slave to the Turkes, did all she could to secure me. 1639 FULLER *Holy War* ii. iv. (1640) 48 Their profession was to fight against Infidels, and to secure Pilgrimes coming to the Sepulchre. 1645 T. TULLY *Siege Carlisle* (1840) 34 Wilson.. shot Cholmley in the brest, but his arms secured him. 1697 DRYDEN *Virg. Georg.* iv. 210 His lofty Pines, With friendly Shade, securd his tender Vines. a 1700 EVELYN *Diary* 22 Sept. 1641, A pass.. securing me through Brabant & Flanders. 1706 E. WARD *Wooden World Diss.* (1708) Advt., The Bill.. for securing Property in Printed Books. 1707 SIR W. HOPE *New Meth. Fencing* i. 11 For 'tis a general Rule in Fencing.. never to present one's Sword, without perfectly Covering, or Securing, as we call it, one side of the Body. 1722 DE FOE *Col. Jack* xix, Any English men-of-war that might be on the coast to secure us to the capes. 1729 TINDAL tr. *Rapin's Hist. xvii. VIII.* 439 They.. only helped to secure Elizabeth's Affairs, who therby was sheltered from the Quarter whence she had most to fear. 1775 JOHNSON *Let. to Mrs. Thrale* 12 May, I really question if at this time my life would not be in danger, if distance did not secure it. 1776 GIBBON *Decl. & F. xiv. I.* 410 Maximian.. gave him [Severus] the most solemn assurances that he had secured his life by the resignation of the purple.

†b. refl. To obtain safety. Obs.

1593 SHAKS. 2 *Hen. VI.* v. ii. 76 Now is it manhood.. To secure vs By what we can, which can no more but flye. 1697 POTTER *Antiq. Greece* i. iv. (1715) 15 Compelled to.. secure himself by a dishonourable Flight. 1705 tr. *Bosman's Guinea* 320 Each endeavouring to secure himself by getting away. 1735 JOHNSON *Lobo's Abyssinia*, *Descri. i.* 51 We had no way of securing ourselves but by flight. 1760 T. HUTCHINSON *Hist. Mass. i.* (1765) 186 His men had secured themselves in a swamp. 1793 SMEATON *Edystone L.* § 313 High wages.. did not engage them to secure themselves with a sufficient stock of provisions. 1800 ASIAT. *Ann. Reg., Misc. Tracts* 30/2 He accordingly began to secure himself with Shujah al Dowlah, into whose service he entered. 1842 W. C. TAYLOR *Ant. Hist. xvii.* § 5 (ed. 3) 515 Though Didius.. was able to secure himself in Rome, he could not [etc.]

c. To render safe, protect or shelter from, guard against some particular danger. Also refl.

1634 MILTON *Comus* 618 Care and utmost shifts How to secure the Lady from surprisal, Brought to my mind a certain Shepherd Lad. 1646 J. MAXWELL *Burd. Issachar* 34, I never accounted them as Apostles, men secur'd from error.

1679 MOXON *Mech. Exerc. ix.* 164 The Battlement being.. Man-high, to secure Men from the shot of their enemies.

1685 STILLINGFL. *Orig. Brit.* ii. 71 For when he came against the Bagaudæ, Carausius was employ'd to secure the Seas

against the Franks and the Saxons. 1692 LOCKE *Consid. Lower. Interest* 150 That way of Coinage less secures you from having a great part of your Money melted down.

1699 WANLEY in *Lett. Lit. Men* (Camden) 293 Whereby Mr. Benson may secure many old words from being buried in the grave of everlasting oblivion.

1741 WATTS *Improv. Mind* i. vii. 19 [We should] consult the dictionary, which may give us certain information, and thus secure us from mistake.

1748 ANSON'S *Voy.* iii. ix. 386 A very safe road, secured from all winds.

1754 J. BROWN *Barbarossa* v. (1755) 66 Is the Watch doubled? Are the Gates secur'd Against Surprise?

1756 BURKE *Subl. & B.* iii. vi. Wks. I 224 The hedge-hog, so well secured against all assaults by his prickly hide.

1784 COPPER *Tiroc.* 119 Neatly secur'd from being soil'd or torn.

1821 SCOTT *Kenilw.* xxxiv, Amy hastily endeavoured to recall what she were best to say, which might secure herself from the imminent dangers that surrounded her, without endangering her husband.

1875 JOWETT *Plato* (ed. 2) V. 30 No possessions seemed to him to have any value which were not secured against enemies.

d. *absol.* To obtain security, take effective precautions against.

1658 *Whole Duty of Man* vii. § 19. 65 It being much more easie to abstain from all, than to secure against the one, when the other is allowed. 1818 SCOTT *Rob Roy* xxvi, The extreme strength of the country.. made the establishment of this little fort seem rather an acknowledgment of the danger, than an effectual means of securing against it. 1828 — F.M. *Perth* xx, This guard the burghers will willingly maintain, to secure against the escape of the murderer of their townsmen.

†e. To take effectual precautions against, to prevent (a danger). Also, to prevent or preclude (a person) from doing something dangerous. Obs.

1633 P. FLETCHER *Purple Isl.* iv. iv, Which stretching round about his circling arms, Warrants these parts from all exterior harms; Repelling angry force, securing all alar' ms.

1692 R. L'ESTRANGE *Fables* cciii. 174 Man only is the Creature, that to his Shame, no Benefits can Oblige, no nor Secure, even from seeking the Ruine of his Benefactor.

1697 in *Perry Hist. Coll. Amer. Ch. I.* 33 Such fort can be no security for his Majestys Customs, nor for finding and securing false and illegal trade.

1710 CELIA FIENNES *Diary* (1888) 83 They Wall round the Town to y' mines to Secure their Mold'ring in upon them.

Ibid. 140 They Carry much of their Carriages on sledges to secure their pitching in the streets.

1831 SCOTT *Cast. Dang.* viii, I deprecate no hardship.. so I may secure you from acting with a degree of rashness, of which you will all your life repent.

1833 T. HOOK *Parson's Dau.* ii. ix, I have secured him from visiting Binford.

†f. To render (an action) safe; to free from attendant dangers. Also, to render (a place) safe for transit. Obs.

1617 SIR O. ST. JOHN in *Buccleuch MSS.* (Hist. MSS. Comm.) I. 194 The King's ship and pinnace that are appointed for the securing of those seas.

1639 FULLER *Holy War* v. v. (1640) 236 Two hundred and fourteen years.. they [sc. the Hospitaliers] maintained this Island, and secured the seas for the passage of Pilgrimes to Jerusalem.

1667 MILTON *P.L.* v. 222 And to him call'd Raphael.. that deign'd To travel with Tobias, and secur'd His marriage with the seaventimes-wedded Maid.

g. *Mil.* To render secure from attack or molestation by the enemy; to take defensive means for the safe execution of (a movement, e.g. a retreat, the crossing of a river); to guard efficiently (a pass, a defile).

1617 MORYSON *Itin.* ii. 66 His Lordship.. sent Captaine Edward Blany with 500 foot and 50 horse, to secure their passage through the pace of the Moyrre.

1645 SYMONDS *Diary* (Camden) 242 The out works, which secured the suburbs.

a 1671 LD. FAIRFAX *Mem.* (1699) 21 It made us think of securing our retreat, with the prisoners we had got.

1698 FRYER *Acc. E. Ind.* & P. 337 The Passes are easily secured (an Handful of men being able to withstand an Host).

1701 STEELE *Funeral* v. i, Then.. you, and your Party, fall in to secure my Rear; while I march off with the Body.

1760 *Cautions & Adv. to Officers of Army* 108 It may be the Means of saving an Army, or securing some Out-post of the utmost Importance.

1831 SCOTT *Ct. Robt. vi.* To take post in the defile.. and thus secure it for the passage of the rest of the army.

1849 MACAULAY *Hist. Eng.* ii. I. 261 Making dispositions which, in the worst event, would have secured his retreat.

1869 FREEMAN *Norm. Conq.* (1876) III. xii. 210 The main point in the fortification was to secure the river.

h. *Mil. to secure arms:* 'to hold a rifle or musket with the muzzle down, and lock well up under the arm, the object being to guard the weapon from the wet' (Ogilvie 1882).

SECURE

1802 C. JAMES *Milit. Dict. s.v.*, *Secure arms!* a word of command which is given to troops who are under arms in wet weather.

1892 RIFLE EXERCISE. (L.-M.) 14 *Secure Arms.*

†i. To fence off. Obs. rare.

1710 CELIA FIENNES *Diary* (1888) 86 Its vain to trye y'

securing it [sc. a hole] round from any falling in.

Ibid. 90 Water.. does often flow y' grounds after Raines, so the Road is secured wth a banck and a breast wall of a good Length.

j. To put in safety, 'get in' (a crop).

1885 *Times* (weekly ed.) 11 Sept. 9/1 Shocks of oats, cut, though not yet secured.

3. To make secure or certain.

†a. To make (a person) secure of a present or future possession, of an ally or supporter, etc. Also const. to with infinitive. Obs.

1610 HEALEY *St. Aug. Cite of God* xxii. xvii. 858 Assigning .. false blisse, vnto the Saints in heauen, where they could never be secured to remaine.

1620 BRENT tr. *Sarp's Counc. Trent* viii. (1676) 728 And indeed he was secure of France and Germany. For besides his treaty with Lorrain which did abundantly secure him of France, he received at the same time a resolution from the Emperour.

1656 EARL MONM. tr. *Boccalini's Advts. fr. Parnass.* II. vi. 218 Since no man can secure himself of the next years plentiful harvest.

1670 DRYDEN *1st Pt. Cong. Granada* v. i. Secur'd of what we hold most dear, (Each other's Love) we'll go.. I know not where.

1745 in *Col. Rec. Pennsylv.* V. 5 Had I.. been secured of Fund for supplying those Nations with Arms.

†b. refl. To get possession of, make sure of.

1675 MACHIAVELLI's *Prince* x. Wks. 71 By.. himself nimblly of such as appear.. turbulent.

1705 *London Gaz.* No. 4158/1, 3 or 4000 of the Inhabitants had taken up Arms.. and had secured themselves of Denia, a good Seaport Town.

Ibid. No. 4162/1 Those who have declared for his.. Majesty having secured themselves of Denia.

1725 BROOME *Notes to Pope's Odys.* viii. 239 Ulysses.. finds a way.. to secure himself of a powerful advocate, by [etc.]

†c. To certify, assure (a person) of some fact.

Also in asseverative phrase, *I'll secure you.* Obs.

1659 HAMMOND *Ps. Ixxii.* 4 This doth not secure us of the importance of the word in this place.

1672 WYCHERLEY *Love in Wood* ii. iv. He spares not the Innocents in Bibs and Aprons (He secure you) he has made (at best) some gross mistake concerning Christina.

1674 BOYLE *Excell. Theol.* i. 32 For ought reason can secure us of, one of the conditions of that association may be, that the body and soul shall not survive each other.

1689 HICKERINGILL *Ceremony-Monger* vi. 34 But Mum—not a Penny, I'll secure you, to make on Sound, and one Mouth.

1737 WHISTON *Josephus, Antq. Diss.* ii. § 3 The events and consequences of things afterwards always corresponded, and secured them of the truth of such divine revelations.

d. To establish (a person) securely in some position, privilege, etc.

1712 SWIFT *Jnl. to Stella* 27 Dec., Steele I have kept in his place. Congreve I have got to be used kindly, and secured. Rowe I have recommended, and got a promise of a place.

1713 ADDISON *Cato* v. i. The Soul, secur'd in her Existence, smile's At the drawn Dagger, and defie's its Point.

1874 GREEN *Short Hist.* iii. § 3 (1882) 125 The Towns were secured in the enjoyment of their municipal privileges.

e. To make (something) secure, certain, or reliable.

Now only with reference to a prospective possession or result of action: 'To place beyond hazard' (J.), to ensure.

1653 HOLCROFT *Procopius, Goth. Wars* iv. 126 In the Roman army was one Artabanes a Persarmenian, revolted lately to the Roman army, having secured his faith by the killing of a hundred and twenty Persian Soldiars.

1697 DRYDEN *Virg. Past.* vi. 18 For he who sings thy Praise, secures his own.

1746 FRANCIS tr. *Horace, Epist.* i. xvii. 58 Whose Bail secure, whose Oath decides a Cause.

1836 J. GILBERT *Chr. Atonem.* ii. (1852) 39 Yet merely to know that life immortal may be obtained, is not to secure our personal enjoyment of it.

1833 P. H. HUNTER *Story of Daniel* 151 Their manner of building secured a certain air of solidity and grandeur.

f. To make the tenure of (a property, office, privilege, etc.) secure to a person.

1736 BUTLER *Anal.* i. iv. Wks. 1874 I. 82 Our whole present interest is secured to our hands, without any solicitude of ours.

1825 SCOTT *Betrothed* *Intro.* The shareholder might contrive to secure to his heirs a handsome slice of his own death-bed and funeral expenses.

1865 FROUDE *Hist. Eng.* (1889) I. ii. 150 Her right to the succession.. would have been readily secured to her by act of parliament.

g. To make (a creditor) certain of receiving payment by means of a mortgage, bond, pledge, or the like.

1777 YARRANTON *Eng. Improv.* 15 The Party lending the Moneys is safe, well and surely secured.

1861 M. PATTISON *Ess.* (1889) I. 41 Some of the large German houses in London.. advanced large sums, taking care.. to secure themselves by mortgages of parts of the public revenue.

h. To make the payment of (a debt, pension, etc.) certain by a mortgage or charge upon certain property.

1818 CRUISE *Digest* (ed. 2) II. 208, 2,000. part of the money secured upon Gidea Hall.

Ibid. IV. 392 Then such daughter should have 3,000.. to be secured upon some part of the estate.

1861 M. PATTISON *Ess.* (1889) I. 36 He assigns 1000 marks yearly as pinmoney to his son's wife, secured upon the Swiss possessions of his house.

i. With double obj.: To ensure (a person's obtaining (something)). rare. (In quot. *passive.*)

1831 SCOTT *Cast. Dang.* xii. You shall be secured an opportunity of being fully heard.

4. To seize and confine; to keep or hold in custody; to imprison. Now somewhat rare.

1645 CHAS. I in *Ellis Orig. Lett. Ser.* i. III. 314 You should beginne with securing the person of William Legge.

1677 YARRANTON *Eng. Improv.* 3 Some of which Persons.. did intend to get me secured for setting out the strength of the Dutch.

1683 WOOD *Life* 6 Sept. (O.H.S.) III. 72 The pro-

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vice-chancellor would then have secured him [Mr. Parkinson],.. till security for his appearance at the assizes should be produced. **a 1700** EVELYN *Diary* 20 June 1689, Newes of a Plot discouer'd, on which divers were sent to the Tower and secured. **1705** [T. WALKER] *Wit of a Woman* III. 32 Secure that Rogue in the Stocks till we have search'd further. **1706** PHILLIPS (ed. Kersey), *To Secure,.. to apprehend or lay hold of one, to clap him into Prison*. **a 1715** BURNET *Own Time* (1724) I. 211 He proposed that about twenty of the chief gentlemen of those Countys might be secured: And he undertook for the peace of the countrey if they were clap'd up. **1799** H. LEE *Canter. T., Old Wom.* T. (ed. 2) I. 392 'Let him be secured,' said St. Aubert. **1818** SCOTT *Hrt. Midl.* II, Wilson and Robertson,.. each secured betwixt two soldiers of the city guard. **1828-32** WEBSTER, *Secure,.. to inclose or confine effectually; to guard effectually from escape; sometimes, to seize and confine; as, to secure a prisoner.* The sheriff pursued the thief with a warrant, and secured him.

5. a. To make fast or firm.

1663 GERBER *Council* 97 And so much may suffice for the securing of doores and windows. **1687** M. SCRIVENER *Will in Wills & Clark Cambridge* (1886) III. 437 Chains for the securing the books. **1719** DE FOE *Crusoe* I. 305, I send Friday with the Captain's Mate to the Boat, with Orders to secure her, and bring away the Oars and Sail. **1753** BARTLET *Gentl. Farriery* xxv. 231 A proper compress of cloth, and a linnen rowler is absolutely necessary both for this purpose, and to secure on the dressings, wherever they can conveniently be applied. **1823** *Mechanic's Mag.* I. 105 On the securing of carriage wheels. **1825** SCOTT *Betrothed* viii. A girdle.. secured by a large buckle of gold. **1867** AUGUSTA WILSON *Vash* xix. She caught up her hair, twisted it hastily into a knot, and secured it with her comb. **1879** *Cassell's Techn. Educ.* IV. 80/2 These work in nute secured to the doors. **1894** WEYMAN *Man in Black* 189 A wide-leaved hat, in which a costly diamond secured a plume of white feathers.

b. *Surg.* To close (a vein or artery) by ligature or otherwise, in order to prevent loss of blood.

1662 WISEMAN *Treat. Wounds* I. 35 Having thus secured the Vessels for the present. **1753** BARTLET *Gentl. Farriery* xxvi. 234 Should the wound bleed much from an artery divided, the first step should be to secure that by passing a crooked needle underneath, and tying it up with a waxed thread. **1880** C. HEATH *Man. Minor Surg.* (ed. 6) 34 In the case of an amputation, the main arterie will be secured before the cord is loosened.

6. a. To get hold or possession of (something desirable) as the result of effort or contrivance.

1743 BULKELEY & CUMMINS *Voy. S. Seas* 19 We took Care to secure some Powder, Ball, and a little Bread. **1748** SMOLLETT *Rod. Rand.* xxii, Having thus secured my good opinion, he began [etc.]. **1814** SCOTT *Antiq.* i, The first comer hastens to secure the best birth in the coach for himself. **1824** J. H. NEWMAN *Hist. Sk.* (1873) II. II. i. 246 [The profession] of arms.. secures the almost undivided admiration of a rising and uncivilized people. **1855** PRESCOTT *Philip II*, I. II. vii. 219 His cordial manners.. secured the sympathy of all with whom he came in contact. **1873** TRISTRAM *Moab* Pref. 5 The splendid series of 180 photographs which they secured.

b. *Rugby Football.* To get or obtain (a try).

1885 *Field* 31 Jan. 135/2 The last-mentioned secured a try between the posts.

7. *Hort.* (See quot. 1928.)

1928 *Daily Express* 11 Aug. 4/2 The Japanese varieties of the chrysanthemum are now beginning to show their flower buds, and these should be 'secured', as it is called, at the earliest possible moment. This is done by pinching out with the thumb and finger the incipient side shoots or laterals that will be found in process of formation immediately beneath the buds and in the axils of the leaves. **1951** *Dict. Gardening* (R. Hort. Soc.) I. 476/1 It should be possible to secure the first crown bud of many varieties during the last week in July.

secured (sr'kjoōd), *ppl. a.* [f. SECURE *v.* + -ED¹.] In senses of the verb: Assured; firmly fastened; rendered safe. Now chiefly of a debt: For which the creditor holds security. Also of a creditor.

1605 BACON *Adv. Learn.* II. xx. §5 They haue also excellently handled it.. in the distinction between vertue with reluctance, and vertue secured. **1875** *Act 38 & 39 Vict.* c. 77 §10 The respective rights of secured and unsecured creditors. **1899** *Westm. Gaz.* 28 Aug. 6/3 The companies have no scale by which they regulate their charges, but advance to one man at 4 per cent. and to another at 5 per cent. for a secured loan.

†**se'cureful**, *a.* *Obs.* *rare*⁻¹. [f. SECURE *a.* + -FUL.] Protecting.

c1611 CHAPMAN *Iliad* VII. 209, I know.. eueri sway, of my securfull targe.

securely (sr'kjoōli), *adv.* [f. SECURE *a.* + -LY².] In a secure manner (in various senses).

†1. In a manner free from care or apprehension; carelessly; confidently; without care or misgiving.

1588 SHAKS. *Tit. A.* III. i. 3 Whose youth was spent In dangerous warres, whilst you securely slept. **1593** — *Rich.* II. II. i. 266 We see the winde sitte sor upon our sailes, And yet we strike not, but securely perish. **1631** GOUGE *God's Arrows* I. §60 A Priest by vertue of his calling readily and securely admitted lepers to come to him. **1678** BUNYAN *Pilgr.* I. (1900) 67 When I dwelt securely at home. **1707** ATTENBURY *Vind. Doctr. Funeral Serm.* 42 Whether any of the Reasonings.. are inconsistent with each other, I securely leave to the Judgment of the Reader. **1768-74** TUCKER *Lit. Nat.* (1834) II. 297 We have nothing, but thoughtlessness and insensibility of danger to make us enjoy prosperity securely. **1802** MAR. *EDGEWORTH Moral T.* (1816) I. iv. 25 Trusting securely to the power of his own eloquence.

2. Without danger; in security; safely.

1615 BRATHWAIT *Strappado* (1878) 118 Being vnder shade securely sconst, Which place he had elected for the nonst. **1661** J. DAVIES tr. *Olearius' Voy. Ambass.* 67 This animal [the Reindeer] goes as securely as if it were upon the

Ground. **1697** DRYDEN *Virg. Georg.* II. 396 How deep they must be planted woudst thou know? In shallow Furrows Vines securely grow. **a 1700** EVELYN *Diary* 11 May 1652, Two cut-throates started out, and.. halde me into a deep thicket some quarter of a mile from the highway, where they might securely rob me. **a 1701** MAUNDRELL *Journ. Jerus.* 19 Mar. (1732) 43 Princes can never sleep securely but by day. **1784** COWPER *Tiroc.* 808 Tenants of life's middle state, Securely plac'd between the small and great. **1871** GEO. ELIOT *Middlem.* xxi, It was in that way Dorothea came to be sobbing as soon as she was securely alone.

3. Without risk of error; certainly.

1597 HOOKER *Eccl. Pol.* v. lxxviii. §12, I may securely therefore conclude that there are [etc.]. **1877** RUSKIN *For. Clav.* lxxii. 297 As I am securely informed. *Ibid.* lxxvii. 409 The metaphor.. I do not yet securely understand.

4. Firmly.

1856 KANE *Arct. Expl.* I. xxiii. 293 They had tied the dogs securely, as they thought: but Toolda and four others had broken loose. **1908** [MISS FOWLER] *Betw. Trent & Ancholme* 14 Those wroght stones.. are now securely clamped to the south wall.

securement (sr'kjoōmēnt). *rare.* [f. SECURE *v.* + -MENT.] The action or an act of securing. **†a.** Making safe from or against. **Obs. b.** Ensuring or making sure.

1622 in Foster *Eng. Factories Ind.* (1908) II. 108 [Willoughby has also been furnished with money, and left to take his choice of means] for his best securment. **1646** SIR T. BROWNE *Pseud. Ep.* i. ii. 7 Cain.. grew afraid thereof, and obtained a securment from it [death]. **1658** — *Let. to Dugdale* 10 Nov., The laborious Aggers, Banks, and Works of Securement against Floods and Inundations. **1883** *Century Mag.* July 475/2 Liberty, however, is so highly priz'd that society condemns the securment in all cases of perpetual protection by means of perpetual imprisonment.

secureness (sr'kjoōnēs). *rare.* [f. SECURE *a.* + -NESS.] = SECURITY I. 3.

1591 HARINGTON *Orl. Fur.* VII. xxxvi. 52 To restitution turne your doing wrongs, Your fond securenesse, turne to godly feares. **1618** BOLTON *Florus* IV. xii. (1636) 320 Therefore [O strange secureness!] as hee sate upon the Tribunall.. they at un-awares assailed him on all hands. **1633** T. ADAMS *Exp. 2 Peter* i. 5 No man perfectly knows his own heart: you think all well; this may be not assurance, but secureness. **1668** TEMPLE *On Approach of Shore of Harwich* 32 Thy sweet Inclosures.. Shew thy secureness from thy Neighbours Harms. **1838** MRS. BROWNING *Seraphim* I. (near end), Down-lay Your sweet secureness for congenital fears.

securer (sr'kjoōrə(r)). *rare.* [f. SECURE *v.* + -ER¹.] One who or that which secures, in various senses of the verb.

1636 STRAFFORD *Lett.* (1739) II. 18 The Army.. was rather to be reinforced.. as.. the chief Securer.. of the.. Plantations. **a 1704** T. BROWN *Satire upon Fr. King* Wks. 1730 I. 59 Of Kings distressed thou art a fine securer. **1820** *Examiner* No. 616. 66/1 He rose early, which is a great securer of health.

securi- (sr'kjoōr̄i), combining form of L. *secūris* axe, f. *secāre* to cut. Used in various scientific terms. **securi'cornate** [L. *cornū* horn + -ATE] *Ent.*, 'having the antennæ in form of a hatchet' (Mayne *Expos. Lex.* 1858). **securifer** [L. *secūrifer* adj., -fer, *ferre* to bear] *Ent.*, one of the *Securifera* or phyllophagous hymenoptera. **secu'riferous** *a.* [-FEROUS], axe-bearing; spec. of or pertaining to the *Securifera*. **secu'rigerous** *a.* [-GEROUS] *Bot.* (see quot.). **se'curipalp** [L. *palpus*] *Ent.*, a beetle of the division *Securipalpi*. **se'curi'palpus** *a.* [-OUS] *Ent.*, of or pertaining to the division *Securipalpi*. See also SECURIFORM *a.*

1656 BLOUNT *Glossogr.*, *Securiferous*, that beareth an Axe or Hatchet. **1842** BRANDE *Dict. Sci.* etc., *Securifer*, *Securiferi*, the name of a tribe of *Terebrantia*, or boring Hymenopterous insects. **1858** MAYNE *Expos. Lex.*, *Securiferous*. *Ibid.*, *Securigerous*,.. applied to the *Montbretia securigera*, from the form of the appendages that garnish the corol: *securigerous*. **1842** BRANDE *Dict. Sci.* etc., *Securipalps*, *Securipalpi*, the name of a family of Coleopterous insects, comprehending those in which the maxillary palps terminate in a joint which is elongated and hatchet-shaped. **1858** MAYNE *Expos. Lex.*, *Securipalpus*.

Securicor (sr'kjoōr̄ikɔ:(r)). [Invented name f. SECURI(TY) + COR(PS).] The proprietary name of a private security organization employed in the guarding and safe transport of money, goods, and property. Freq. *attrib.*, esp. as *Securicor man*, *van*. Also *fig.* (with small initial).

1953 *Change of Name Certificate* 3 Jan. in Dept. of Trade file (354883) Night Guards Limited.. *Securicor Ltd.* **1961** *Security Gaz.* Feb. 64/3 (caption), *Securicor guards* are responsible for the safety of Ireland's greatest art treasure, the 1,000 year old 'Book of Kells'. **1962** *Daily Tel.* 6 Sept. 13/1 An executive of Securicor, the security organization, said.. 'They were stupid to try to change vehicles.' *Ibid.*, Mr. Norman Negus, 54, a Securicor guard, walked out of the bank.. carrying the cash box chained to him. As he approached the armoured Securicor van the ambush was sprung. *Ibid.*, Another Securicor man, locked inside the armoured van, sounded the alarm siren. **1968** *Listener* 12 Dec. 804/3 Unless future student audiences can be screened in advance by the BBC's own securicor, one sees small hope for this series. **1970** *Guardian Weekly* 14 Mar. 9/1 *Securicor*, *Security Express*, and *Factoryguards*—the three main companies which account for about 90 per cent of the manned protection in Britain. **1977** D. BAGLEY *Enemy* xxx. 239 The auctioneer has Securicor men all over the place.

SECURITY

securiform (sr'kjoōr̄ifɔ:m), *a.* [f. SECURI- + -FORM.] Axe-shaped, having the form of an axe or hatchet. **a. Bot.** applied to leaves, etc. **b. Ent.** applied to a palpus or joint, etc.

1760 J. LEE *Introd. Bot.* iii. xviii. (1765) 212 *Securiform*, Hatchet-shaped. **1815** KIRBY & SP. *Entomol.* ix. (1818) I. 299 *note*, Mordelle will open the anthers with the securiform joints of their palpi to get at the pollen. **1819** SAMOUELLE *Entomol. Compend.* 165 *Labilis palpi securiform*. **1835-6** TODD'S *Cycl. Anat.* I. 703/2 *Conchifera*.. The foot.. is securiform when its free edge is arched like the cutting face of an axe, as in *Petunculus*. **1852** DANA *Crust.* II. 869 A small hand, slightly oblong, somewhat securiform.

se'curing, *ppl. a. rare.* [f. SECURE *v.* + -ING².] That secures, in various senses of the verb.

1643 J. M. *Sov. Salve* 35 The only sure and securing way to follow. **1798** *Times* 28 June 1/1 Drawing papers, pallets, gold and silver paper, copal and securing varnish.

†se'curitan. *Obs. rare.* [f. SECURIT-Y + -AN, ? after *Puritan.*] One who is characterized by 'security' or culpable freedom from apprehension.

1623 Bp. HALL *Serm. Re-edif. Chapell of Earle of Exeter Wks.* (1625) 529 The sensual Securitan pleases himself in the conceit of his owne peace. **1627** R. BERNARD *Isle of Man* [is] One M^r. Out-side, in the inside a carnall Securitan, [is] a fellow that will come to his Church [etc.]

securite (sr'kjoōr̄it). Also -it. [f. SECURE *a.* + -ITE 4, after the Ger. name *sicherit* (*sicher* sure, safe).] A high explosive consisting of a mixture of meta-di-nitro-benzole with nitrate of ammonium (Cundill *Dict. Explosives*, 1889, p. 82); used chiefly in blasting operations.

1888 *Times* 2 Mar. 13/6 Securite consists of nitrated hydro-carbons in admixture with certain oxidizing agents. It is the invention of Herr Scheneweg, who has now rendered it flameless when exploded, by the addition of an organic salt in certain proportions. **1897** *Allbutt's Syst. Med.* II. 958 The symptoms following the use of sicaret (securite or sicherite) resemble those which are caused by roburite.

security (sr'kjoōr̄it). Forms: 5 *securyte*, *securite* (e, 6-7 *securite*, *securitie*, *securite*, 6- security. [ad. L. *secūritās*, f. *secūr-us*: see SECURE *a.* and -ITY. Cf. F. *securité* (16th c. in Hatz.-Darm.), Sp. *seguridad*, Pg. *seguridade*.]

I. The condition of being secure.

1. a. The condition of being protected from or not exposed to danger; safety.

1432-50 tr. *Higden (Rolls)* I. 77 Also hit [Paradise] bathe securite, to the whiche sevengy the altitude of the place berrette testimony [Lat. *Habet et securitatem cui attestatur loci altitudo*]. **1492** RYMAN *Poems lxxix.* 3 in *Archiv Stud. neu. Spr.* LXXXIX. 249 Thyne eye of grace vpon vs cast, Of helth and of securite. **1582** STANYHURST *Æneis* I. (Arb.) 25 Therfore No worldy corner can theyme securite warrant. **1617** MORYSON *Itin.* II. 13 This Earle providing for his securtie, about this time imprisoned the above mentioned sonnes of Shane ONEALE. **1745** in *Col. Rec. Pennsylv.* V. 26 Some Provision should be made for the Security of our Frontier Settlements at least. **1781** GIBBON *Decl. & F.* xxxi. III. 229 The emperor and his court enjoyed.. the security of the marshes and fortifications of Ravenna. **1861** M. PATTISON *Ess.* (1880) I. 46 The Esterlings.. lay in security behind their walls, while the Flemish and other foreign residents fell helpless victims to the rage of the populace. **1903** A. SMELLIE *Men of Covenant* xxxii. (ed. 2) 352 His security lay, of course, in his lord's deafness.

b. The safety or safeguarding of (the interests of) a state, organization, person, etc., against danger, esp. from espionage or theft; the exercise of measures to this end; (the maintenance of) secrecy about military movements or diplomatic negotiations; in espionage, the maintenance of cover. Hence (with capital initial), a department (in government service, etc.) charged with ensuring this. (This sense tends towards 'the condition of making secure'.)

1941 *Times* 16 July 3/1 In order to ensure public security, the occupation of the principal localities in Syria and the Lebanon will be undertaken in accordance with the programme which will allow immediate replacement of French by the occupying forces. **1941** E. JOHN *Lofton Let.* 34 Major Talbot.. prides himself.. on the 'security' of this expedition.. [note] That is the Army term for what normal people call 'secrecy'. **1945** [see LEAKAGE 2]. **1955** *Bull. Atomic Sci.* Apr. 165/3 'Security', as it relates to the continuing struggle between the free world and the Soviet bloc, is an abundantly common yet widely misunderstood word. **1959** *Listener* 8 Oct. 558/1 You can call at offices, clubs, studios, and institutions—anywhere that does not verge on security—and usually they will tell you, foreigner though you are, the telephone numbers of their staff. **1961** R. SETH *Anal. Spying* v. 8 In the spy's vocabulary, Security means doing nothing that is likely to reveal his clandestine rôle.. Each separate aspect of Security may be small.. but any one aspect neglected is sufficient to cause the spy's downfall. **1965** M. ALLINGHAM *Mind Readers* vi. 59, I thought that might have been what Security told you when they sent for you. **1976** M. DELVING *China Expert* iv. 44 Security persuaded him to leave the army, and a place was found for him in. MI5. **1976** *Daily Tel.* 20 July 2/3 Security at places like the airport is always under review. **1982** *Observer* 6 June 1/7 While Israeli reaction has been to praise the British police.. there is some evidence that security outside the hotel was lax.

2. Freedom from doubt; confidence, assurance. Now chiefly, well-founded confidence, certainty.

Exhibit 4



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/794,662	10/26/2017	Michael J. Berardi	4082U.028	1700
21917	7590	02/09/2018	EXAMINER	
MCHALE & SLAVIN, P.A. 2855 PGA BLVD PALM BEACH GARDENS, FL 33410				BRINSON, PATRICK F
ART UNIT		PAPER NUMBER		
		3753		
NOTIFICATION DATE			DELIVERY MODE	
02/09/2018			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspatents@mchaleslavin.com

Office Action Summary	Application No. 15/794,662	Applicant(s) BERARDI, MICHAEL J.	
	Examiner Patrick F. Brinson	Art Unit 3753	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on ____.
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) This action is **FINAL**. 2b) This action is non-final.

3) An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) Claim(s) ____ is/are allowed.

7) Claim(s) 1-20 is/are rejected.

8) Claim(s) ____ is/are objected to.

9) Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) The specification is objected to by the Examiner.

11) The drawing(s) filed on 10/26/2017 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) All b) Some** c) None of the:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. ____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date 1/12/18.

3) Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.

4) Other: ____.

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1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention

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made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1-20 rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-14 and 17-22 of U.S. Patent No. 8,291,941 in view of 6,523,539 to **McDonald et al.** The '941 reference discloses the recited structure with the exception of reciting that the flexible outer tube has a maximal length and a maximal diameter wherein the inner flexible tube has a relaxed length being substantially less than the outer tube maximal length. The **McDonald et al.** reference

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discloses a self-elongating hose including a flexible outer tube (36) constructed from fabric having a first end and second end, the tube having a maximal length and a maximal diameter, and a flexible elongated inner tube (30), formed of an elastic material, and having a first and second end, with the elastic tube having a relaxed length when not stretched that is substantially less than the outer tube maximal length. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the elastic inner hose of the '941 reference, such that it is substantially less than the maximal length of the outer tube, as suggested by **McDonald et al.**, in order to allow the tube to extend to its maximum length.

Claim Rejections - 35 USC § 103

4. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7, 10-18 and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over U.S. 6,948,527 to **Ragner et al.** in view of U.S. 6,523,539 to **McDonald et al.**

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The **Ragner et al.** reference discloses a flexible elongated outer tube, fig. 3A, (32) constructed from a fabric material having a first end and a second end, an interior of the outer tube being substantially hollow, said flexible elongated outer tube having a maximal length and maximal diameter. A flexible elongated inner tube (34) having a first end and a second end, an interior of the inner tube being substantially hollow, the inner tube having a relaxed length when not being stretched. Figs. 1A and 1B disclose a first coupler (20) secured to a first end of the inner and outer tubes, with the first coupler constructed to couple the hose to a source of pressurized fluid, and a second coupler (22) secured to the second end. **Ragner et al.** discloses that the outer cover material (32) can be molded on the biasing spring and inner cover (34) to hold the system together, but that it is not required for the hose to function as a linearly retractable and extendible hose. **Ragner et al.** further discloses, col. 4, lines 52-54, lines 57-59, as well as col. 5, lines 7-9, that the biasing means can be integrated with the body of the hose or may not be solidly attached to the hose at all and can be internal to the body of the hose. Col. 4, lines 60 and 61 and col. 5, lines 9-11 disclose that the biasing means may only be attached at the ends of the hose to operate properly. Vinyls and other polymers may be used as cover materials and col. 5, lines 45 and 46 disclose that the inner cover (34) provides most of the pressure support and may have a mesh of fibers within a more flexible material to help withstand higher pressures. Col. 5, lines 61-63 discloses that the cover materials need to be

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flexible to allow easy stretching and contracting. **Ragner et al.** further discloses a flow restrictor (246), sprinkler (24), or nozzle (104) coupled to the second coupler, whereby upon introduction of a flow of pressurized liquid through the first coupler into the inner tube and operation of the flow restrictor to at least partially block the flow of pressurized liquid from exiting the inner tube, the inner tube fills with pressurized liquid resulting in an increase in fluid pressure within the inner tube interior, and the increase in fluid pressure expands the inner tube longitudinally along a length and laterally across a width of the inner tube thereby increasing the hose to an expanded condition against the force of the biasing spring. Col. 17, lines 40-43 discloses that when the water pressure is turned off, the hose slowly retracts to its compressed state as water is slowly forced out through the nozzle opening by the contracting force of the hose. The inner and outer tubes are of material that will not kink or become entangled when the inner and outer tubes are in their expanded condition, as recited in **claims 6 and 15**. **Ragner et al.** discloses the recited structure with the exception of specifically disclosing the inner hose formed of an elastic material. The **McDonald** reference discloses a self-elongating oxygen hose designed for the flow of pressurized gas therethrough. The hose preferably includes an inner inflatable elastomeric inner tube (30), formed of materials selected from the group consisting of silicone rubber materials, together with an exterior sheath (36) of woven or braided material, including Nomex, Kevlar, and nylon, that restricts radial

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expansion of the tube while permitting axial expansion thereof. **McDonald et al.** discloses that the sheath is two to three times the length of the inner tube and is only connected to the inner tube at their ends. The sheath is in a gathered or shirred condition along the length in an unexpanded state, however, when pressurized gas is delivered into the tube, it expands in both radial and axial directions with the sheath serving to inhibit and restrict the extent of the radial expansion while permitting axial elongation. Col. 3, lines 41-42 disclose that after use, the hose will retract itself and the device may be restored back into container (42). **McDonald et al.** further discloses first and second restrictor sleeves (38) secured to first and second tube ends, that provide gradual transition of laterally outward expansion of the tube when there is an increase in pressurized fluid within the inner tube interior between first and second couplers (32, 24), as recited in **claims 5 and 18**. Wherein **Ragner et al.** discloses that the biasing means is not necessarily a spring, and that the biasing means may be allowed to freely slide with respect to the hose, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute for spring and/or inner tube of **Ragner et al.** an inner tube formed of an elastomeric material that is separate from the outer tube, as suggested by **McDonald et al.** as an alternative method of forming an elongated extendible and retractable garden hose. In regard to the limitation recited in **claims 4 and 17**, **McDonald et al.** discloses the tube being able to stretch up to twice its contracted length, but does not disclose it

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being able to stretch up to six times its contracted length. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the initial length of the inner hose and/or the elasticity of the inner hose such that it may stretch up to six times its contracted length depending upon its use and function, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges and/or values involves only routine skill in the art. In regard to the limitation recited in **claims 7 and 12**, the restrictor sleeves are crimped onto the ends and therefore do not require additional securing means. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute for crimping, a securing device that extends around the outer circumference of the hose wherein it is known in the art that a securing ring is an alternative means of securing a restrictor sleeve onto ends of flexible hoses.

6. Claims 8, 9 and 19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Ragner et al.** in view of **McDonald et al.** as applied to claim 1 above, and further in view of U.S. 6,983,767 to **Rickards**.

The **Ragner et al.**, device, as modified, discloses an extendable and retractable hose including an outer hose formed of a fabric material, but does not disclose indicia on the outer tube. The **Rickards** reference discloses a sleeve for a hose formed of a rugged, strong, washable material, preferably a nylon material, with the sleeve further

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including indicia that may be screen printed, sewn on, painted on, or otherwise associated with the sleeve. The sleeve is secured to an outer side of hose (10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide to the outer fabric tube of **Ragner et al.**, as modified, indicia or a logo, as suggested by **Rickards** in order to advertise the type of hose or the name of the company using the hose.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Patrick F. Brinson** whose telephone number is (571)272-4897. The examiner can normally be reached on M-F 7:30-3:00.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Craig M. Schneider** can be reached on (571) 272-3607. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrick F. Brinson/
Primary Examiner, Art Unit 3753

P. F. Brinson
February 2, 2018

JOHN MORGAN FELAND, III

QUALIFICATIONS

- Expert at UX Design with proven prowess at gesture design and integration in complex applications
- Award winning product designer with a fluency in both consumer empathy and deep technology expertise
- Deep technical knowledge of embedded vision systems, artificial intelligence, autonomous vehicle technologies
- Wildly imaginative and creative approach to solving difficult problems and crafting novel opportunities
- Prowess in long term strategic foresight and product planning, utilizing multidisciplinary trends
- Deep empathy for end users, culling insights from ethnographic, interviews, and other methods
- Patents issued & pending in MEMS sensors, consumer electronic interfaces, UX gestures, and AI insights
- Managed the development of over 100 unique prototype consumer product experiences
- Excellent technical writing and oral presentation skills, including press, investor, and executive interactions

PROFESSIONAL EXPERIENCE

I-LAB ENGINEER, Aug 18 to present

The Nueva School, CA

Teacher at noted private school for gifted students in Silicon Valley. Courses include engineering and entrepreneurship.

CEO & FOUNDER, Sep 09 to present

Argus Insights, CA

Founder of Argus Insights, a novel Experience Analytics firm that provides real-time market intelligence on user experiences with consumer products and services. Providing evidence to support strategic decision making, Argus Insights offers a comprehensive set of offerings enabling the enterprise deeper understanding of how their products and services impact their target users as well as competitive experience landscapes. Mixing a blend of Artificial Intelligence sentiment analysis, processing of unstructured consumer data and design thinking methodologies, Argus has helped clients identify millions in cost savings, market potential, and provided recommendations that moved firms from obscurity to acknowledge market leaders.

Key Clients and Projects include:

- Autonomous Vehicle Alliance: Analysis of what UX aspects are driving adoption in autonomous vehicles including consumer perception of semi-autonomous features such as self-parking and adaptive cruise
- Gerber Technology: UX design for industrial cutting tools, using design thinking to lower training requirements and drive up operator effectiveness
- Silicon Labs: Mapping of consumer journey through Smart Home UX and impact of Voice Assistants on multi-user experiences in the home

FORUM CHAIR, Apr 2017 to Sep 2018

IoT Forum, CA

Forum chair and moderator for the Internet of Things Forum in Silicon Valley. Recent topics include Autonomous Vehicles, Industrial IoT, Security, Robotics and Agriculture.

DISTINGUISHED LECTURER, 2012

Cogswell Polytechnical College, CA

Developed curriculum and taught classes in Entrepreneurship and Robotics.

CONSULTING ASSISTANT PROFESSOR, Oct 09 to Sep 11

Stanford University, CA

Appointment in the Design Group of Mechanical Engineering to teach occasional classes on design innovation.

EXECUTIVE DIRECTOR, GLOBAL DESIGN INNOVATION, Oct 09 to Dec 2010

Stanford University, CA

Executive Director of the world renowned ME310 Global Design Innovation course. With a forty year history, this year long graduate mechanical engineering course has been connecting students from around the world with enthusiastic corporate partners to both develop their design skills and create compelling innovation prototypes for companies.

CHIEF TECHNOLOGIST, Sep 08 to Sep 09

SK Telecom Americas, CA

Responsible for understanding how the rapidly changing technology landscape would enable SK Telecom to craft new business opportunities in the Americas. My areas of responsibility ranged from NGN wireless technologies (LTE vs WiMaxx, etc), handheld experiences & the interface technologies that enable them (multitouch touchscreens, haptic feedback, smartphone operating systems), as well as evolving influences on the telecommunications market (cloud computing, femtocells, CDN's, LBS, SNS, etc.) Supported SKTA's internal Business Development & Corporate Venture Capital organizations.

LECTURER IN STANFORD DESIGN GROUP, Dec 2007

Stanford University, CA

Cotaught Strategic Foresight and Design course with Director of the Stanford Center for Critical Foresight.

USER INTERFACE ARCHITECT & HANDHELD MARKETING MANAGER, Aug 06 to Aug 08

Synaptics, CA

John Morgan. Feland, III

john.feland@argusinsights.com, 650-868-0114

Developing new interface capabilities based on current and anticipated customer needs. Driving demand for new capabilities with Tier 1 consumer electronic OEM customers. Led efforts to create innovative concepts in the PC Peripherals, Gaming, Multi-finger Touchscreen interactions, and Capacitive Button technologies that consider emerging user needs, current technology trajectories, and evolving market conditions. Member of internal Intellectual Property Team, responsible for reviewing potential internal IP, licensing opportunities, and IP strategy.

Built a team to drive innovation through the ideation & creation of experience prototypes. New concepts generated over \$3 mil in revenue in the first year. Architected the Onyx, a new mobile phone experience widely heralded as the future of mobile interfaces, winning 2006 international Red Dot Design Concept Award.

SENIOR MECHANICAL ENGINEER, Feb 04 to Dec 04 Symyx Technologies, CA

MEMS industrial sensor development. Responsibilities include customer need-finding, product idea generation, concept prototyping, supply chain development, and detailed component design for a \$40 million market.

MENTOR TEACHING AFFILIATE, Winter Quarter 2003-2004 Stanford University, CA

Teaching team in the first course for the Stanford University d.School. Studio Head for Interdisciplinary Design Innovation class. Taught business, engineering, & humanities students to design video games for Electronic Arts.

Trusted Nomad, CA

Worked as an independent contractor to provide innovation training to Finnish product design firms. Identified potential market opportunities for MEMS sensors for Symyx Technologies that resulted in a new business unit.

ASSISTANT PROFESSOR, ENGINEERING MECHANICS, Aug 99 to Jul 01 US Air Force Academy, CO

Dramatically redesigned engineering design curriculum. Received highest instructor enthusiasm ratings for the entire university and highest student evaluations in course history. Launched first ever Mechatronics course. Faculty advisor to SAE Mini-Baja, part-time Japanese instructor, and Professional Ethics Advisor to 120 students.

Supervised classified intelligence support for Operation Allied Force in Kosovo. Worked with interdisciplinary team to translate user needs to system requirements. Ensured national intelligence assets were leveraged in support of entire theater of operations, ranging from Norway to Iraq.

PROGRAM MANAGER, DEFENSE INTELLIGENCE SYSTEMS, Mar 97 to Apr 99 National Air Intelligence Ctr, OH

Managed defense technical intelligence mission requirements and software development for \$18 billion missile warning satellite program. Selected to lead eight-person multidisciplinary team transitioning critical imagery support directly to the Warfighter. Direct oversight of a \$4 million software development effort.

PRODUCT DESIGN ENGINEER, Jun 96 to Jan 97 IDEO Product Development, CA

Worked as mechatronic design engineer for world's foremost design firm, IDEO Product Development. Designed and prototyped products ranging from artificial skin bioreactors for Advanced Tissue Sciences to new office lighting concepts for Steelcase Inc.

EXPERT CONSULTING DURING PAST FOUR YEARS

- *Incase Design Corp. v. mophie, Inc.* Interference No. 105,946 (RES).
- *mophie, Inc. v. Dharmesh Shah, et. al.*, Case No. SACV 13-01321 DMG (JEMx) (C.D. Cal.)
- *mophie, Inc. v. uNu Electronics, Inc.*, Case No. 8:13-cv-01705-CAS (JCGx) (C.D. Cal.)
- *Jawbone, Inc. v. Fitbit Inc.*, (C.D. Cal.)
- *Jawbone, Inc. v. Fitbit Inc.*, (Federal Trade Commission, D.C.)
- *T-Mobile USA, Inc. v. Huawei Device USA, Inc.*, Case No. C14-1351-RAJ (US District Court, Western District, WA)
- *Zagg Inc., & mophie, Inc v. Anker Technology Co .Ltd., et. al.* , Case No. 8:17-CV-2193 (C.D. Cal.)
- *Thunder Power New Energy Vehicle Development Company Limited, v. Byton North America Corporation, et. al.* , Case No. 3:18-cv-03115-JST, (US District Court, Northern District, CA)
- *Nine Stars Group USA Inc. v. Factory Direct Wholesale, LLC* Case No. 2:18-cv-06471-PSG-PJW, (US District Court, Northern District, CA)
- *ANCORA TECHNOLOGIES, INC., v. LG ELECTRONICS INC. and LG ELECTRONICS U.S.A., INC.*, Civil Action No. 1:20-cv-00034-ADA (United States District Court For The Western District Of Texas Austin Division)

John Morgan. Feland, III

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EDUCATION

PHD IN MECHANICAL ENGINEERING, 2005

Stanford University, CA

Pursued comprehensive design research that integrates human, business, and technical issues in support of increased innovation performance. Developed model of design innovation that forecasts downstream corporate performance. Coursework includes need-finding, decision analysis, marketing, accounting and finance.

MASTERS OF SCIENCE IN MECHANICAL ENGINEERING, 1996

Stanford University, CA

Coursework in mechanical design, smart product development, entrepreneurship and program management.

S.B. MECHANICAL ENGINEERING, 1994

Massachusetts Institute of Technology, MA

Coursework included product design, Japanese, fluid dynamics, manufacturing methods and thermodynamics.

AWARDS/HONORS

- Red Dot Design Concept Award winner for the Onyx Mobile Phone Concept, world's first functioning multitouch mobile phone experience (2006)
- Over ten patents issued and pending, two for MEMS Sensors and eight for consumer electronics human interfaces
- Guest Editor of Special Issue on Innovation for the International Journal of Engineering Education (2004)
- ASEE Apprentice Faculty Grant Winner (2003)
- ASME Curriculum Innovation Award, Honorable Mention (2002)
- Air Force Commendation Medal, First Oak Leaf Cluster (2001)
- Top Junior Faculty of USAFA School of Engineering (2001)
- Who's Who in the World and America
- Instructor of the Quarter, Department of Engineering Mechanics (2000)
- Joint Achievement Medal (1999)
- Air Force Commendation Medal (1999)
- Joint Analysis Center Most Valuable Contributor Award during week 5 of Operation Allied Force in Kosovo (1999)
- Merit Award, Lincoln Foundation Design Competition (1996)
- Professor of Aerospace Studies Award for Top Senior Air Force ROTC Cadet from MIT, Harvard, Tufts, & Wellesley (1994)

SELECTED PUBLICATIONS**Refereed Publications**

Feland, J, Leifer, L. "The Effects of Electronic Documentation Tools on the Performance Outcome of the Design Process," *Proceedings of the 11th International Conference on Engineering Design*, 1997.

Feland, J., Nowack, M., Leifer, L., "Cost-Performance management through knowledge reuse in large-scale defense projects – vision and proposed system architecture," *Proceedings of Design Reuse, EDC 98*, Brunel University, 1998.

Feland, J., Leifer, L., "Requirement Volatility Metrics as an Assessment Instrument for Design Team Performance Prediction," *Designing Design Education for the 21st Century, Mudd Design Workshop II*, 1999.

Feland, J. Leifer, L., Nowack, M., "Requirement Volatility: How Lessons Learned Can Be Applied in the Design of New Requirements," in *Proceedings of the 12th International Conference on Engineering Design*, Munich, Germany, August 24-26, 1999.

Liang, T., Cannon, D.M.C., Feland, J.M., Mabogunje, A., Yen, S., Yang, M.C., and Leifer, L.J., "New Dimensions In Internet-Based Design Capture and Reuse", in *Proceedings of the 12th International Conference on Engineering Design*, Munich, Germany, August 24-26, 1999.

Feland, J and Jensen, D., "A Simple Approach for Using Myers Briggs Type Indicator Data to Enhance Engineering Education", *Proceedings of the ASEE South West Regional Conference*, Golden, CO, March, 2000.

Jensen, D., Feland, J., Bowe, M., Self, B., "A 6-Hats Based Team Formation Strategy: Development and Comparison with an MBTI Based Approach", *Proceedings of the ASEE Annual Conference*, St Louis, June 2000.

Bowe, M., Jensen, D., Feland, J., Self, B., "When Multimedia Doesn't Work: An Assessment of Visualization Modules for Learning Enhancement in Mechanics", *Proceedings of the ASEE Annual Conference*, St Louis, June 2000.

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Feland, J., Leifer, L., "Requirement Volatility Metrics as an Assessment Instrument for Design Team Performance Prediction," Special Issue on Design Education, International Journal of Engineering Design Vol 17, No. 4 and 5. 2001.

Feland, J., "Preliminary Design of a Risk Management Decision Tool in Support of NASA'S Design For Safety Initiative," *Proceedings of the 13th International Conference on Engineering Design*, 2001.

Feland, J., "Building Teammates: Bringing Better Team Skills to Design Courses," *Proceedings of the ASEE Annual Conference*, Montreal, June 2002.

Feland, J., Fisher, C., "Cramming Twenty Pounds into a Five-Pound Bag: Increasing Curricular Loads On Design Students And Enjoying It!" *Proceedings of the ASEE Annual Conference*, Montreal, June 2002.

Feland, J.M., & Fisher, C. (2002). "Cramming twenty pounds more into a sophomore design tool kit: Increasing curricular loads on design students and enjoying it!," *Proceedings of the American Society of Mechanical Engineers International Mechanical Engineering Congress and Exposition*.

Cockayne, B., Feland, J., Leifer, L., "Teaching the "How" of Engineering Innovation," *Proceedings of the ASEE Annual Conference*, Montreal, June 2002.

Emery, K., Feland, J., "The Educators Corner: Online Resources for Entrepreneurship Educators," *Proceedings of the ASEE Annual Conference*, Montreal, June 2002.

Jensen, D., Randell, C., Feland, J., Bowe, M., "A Study of Rapid Prototyping for Use in Undergraduate Design Education," *Proceedings of the ASEE Annual Conference*, Montreal, June 2002.

Moritz, F., Valtingoier, I., Henneke, C. Hatanaka, M., Feland, J. "Distributed Innovation In Sports Equipment – Dojo Style," *Proceedings of IMAC 2002, The 6th IMAC Workshop*, Tokyo, September 19-21, 2002.

Feland, J., "Intentioned innovation: Bringing design views to the practice of innovation," *Proceedings of INFORMS 2002 Annual Conference*, San Jose, CA, November 2002.

Feland, J., Carter, S. "Enabling Student Innovation By Leveraging Lessons From Industry," *Proceedings of the ASEE Annual Conference*, Nashville, June 2003.

Feland, J., Fisher, C., Bartolomei, J., "Utilizing Design Education to Stimulate Life-long Learning Without the Pain," *Proceedings of the 14th International Conference on Engineering Design*, Stockholm, Aug 2003.

Feland, J., "Innovation Impact Map: An Opportunity Evaluation Tool," *Proceedings of the 14th International Conference on Engineering Design*, Stockholm, Aug 2003.

Feland, J., Cockayne, W., Leifer, L., "Comprehensive Design Engineering," *Proceedings of the 14th International Conference on Engineering Design*, Stockholm, Aug 2003.

Cockayne, W., Feland, J., Leifer, L., "Using the Contextual Skills Matrix for PBL Assessment," International Journal of Engineering Education, Vol. 19, No. 5, pp. 701-705, 2003.

Feland, J., Cockayne, W., Leifer, L., "Comprehensive Design Engineering: Designers Taking Responsibility," International Journal of Engineering Education, Vol. 20, No. 3, pp. 416-423, 2004.

Poskela J., Berg P., Pihlajamaa J., Seppälä J., Feland J. 2004. "The Role of Roadmaps in Fuzzy-Front-End Phase of Innovation Process," *Proceedings of IAMOT 2004*, 13th International Conference on Management of Technology, Washington D.C., USA

Feland, J., Guest Editor, "Special Issue on The Entrepreneurial Engineer", International Journal of Engineering Education, Vol. 21 No. 2, 2005.

Feland, J., "Product Capital Model: Measuring the Impact of Design on Corporate Performance," PhD Dissertation, Stanford University, March 2005.

Feland, J. "Virtual Teams in Practice: Tales from the battlefield of the Fuzzy Front End of the Innovation Process," in Higher Creativity for Virtual Teams: Developing Platforms for Co-Creation, eds. MacGregor, S., Torres-Coronas, T. IGI Global (May 31, 2007).

Feland, J., Leifer, L., "Product Social Capital: Measuring the Impact of Design Innovation on Corporate Performance," *Proceedings of the 15th International Conference on Engineering Design*, Paris, Aug 2007.

Berg P., Pihlajamaa J., Nordlund H., Lindroos M., Poskela J., Feland J., "Front End Measurement in Open Innovation," *Proceedings of ISPM 08*, International Society for Professionals in Innovation Management, Tours, France, June 15-19, 2008.

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Feland, J., "Touch the Future: Projected-Capacitive Touch Screens Reach for New Markets," *Information Display*, Vol. 24 No. 7, July 2008.

Invited Talks

"What will the next 10 years bring?: Putting Blockchain, AI, Autonomation and other technologies in context"

- National Conference of State Legislatures, 2017

"Consumer Experiences with Early Autonomous Vehicles: Insights Governing Adoption "

- Autonomous Vehicles 2017 Detroit Summit, 2017

"Voice Assistants Impact on the Automotive Experience, Beyond Siri"

- IEEE COMSEC on Connected Cars, 2015

"Origins of Design Thinking: Design for Aliens "

- Design Thinking Unconference, 2011

"Reflecting the flat world in design education through ME310: Global Design Innovation Class"

- Autodesk University Annual Conference, 2010

"The Future Needs Us, By Design"

- Asilomar Microcomputer Workshop, 2010

"Designing Compelling User Experiences"

- Gilder-Forbes Telecosm Conference, 2005

- ME310, Stanford University, 2006, 2007, 2008, 2009, 2010

"Future of Touch Interfaces"

- Gilder Forbes Telecosm Conference, 2007

- Bear Stearns Investor Conference, 2007

"Teamwork and Teambuilding skills workshop"

- Global Entrepreneurial Marketing, Stanford University 2002

- Creativity and Innovation, Stanford University 2003

- Adventures in Design Thinking, Freshman Seminar, Stanford University, 2003, 2004, 2005

Invited Papers

Bowe, M., Jensen, D., Feland, J., Self, B., "When Multimedia Doesn't Work: An Assessment of Visualization Modules for Learning Enhancement in Mechanics", *Technology Paper: Institute for Information Technology Applications*, US Air Force Academy, CO, (2000).

Self, B., Feland, J., et al, "The Future of Manned Military Space Missions," *Institute for National Security Studies*, U S Air Force Academy, CO, (2001).

Media Mentions

DeGrasse, M., "Another looming 5G challenge: Getting customers to upgrade to a 5G phone," <https://www.fiercewireless.com/devices/5g-coming-but-carriers-need-your-help>, 16 May 2018.

Keys, P., "Who Will Win In The Broken Connected Home Market?", <https://www.forbes.com/sites/phillipkeys/2016/09/01/who-will-win-in-the-broken-connected-home-market/#6b91cf9f102b>, 1 Sep 2016.

"BIG DATA WORRIES AROUND THE INTERNET OF THINGS," <https://www.research-live.com/article/news/big-data-worries-around-the-internet-of-things/id/5005962>, 22 Apr 2016.

Balakrishnan A., "Apple just made a deal that could reinvent the App Store for a new generation," <https://www.cnbc.com/2017/03/25/apple-workflow-deal-the-strategy.html>, 25 Mar 2017.

Fong, A., "How the Amazon Echo became an unlikely leader in the smart home war," <https://business.financialpost.com/technology/personal-tech/how-the-amazon-echo-became-an-unlikely-leader-in-the-smart-home-war>, 7 Mar 2016.

Buckingham, A., "Who are the winners and losers in the current IoT market?," <https://betanews.com/2016/03/03/who-are-the-winners-and-losers-in-the-current-iot-market/>, 3 Mar 2016.

D'Onfro, J., "We're hearing about troubles at Nest, the smart-home company Google bought for \$3.2 billion," <https://www.businessinsider.com/whats-going-on-at-nest-2016-2>, 15 Feb 2016.

Jelinek, J., "Smart Home Devices Are Great. Smart Home Apps, Not So Much," <https://techaeris.com/2016/01/26/smart-home-devices-are-great-smart-home-apps-not-so-much>, 26 Jan 2016.

Bailey, B., "Apple's iPhone success may be reaching its peak," <https://www.usatoday.com/story/tech/2016/01/25/apples-iphone-success-may-reaching-its-peak/79312844/>, 25 Jan 2016.

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Sheridan, K., "10 Hot Smartwatches, Fitness Trackers For Your Holiday Gift List," <https://www.informationweek.com/mobile/10-hot-smartwatches-fitness-trackers-for-your-holiday-gift-list/d/d-id/1323361>, 2 Dec 2015.

Comstock, J., "Report: Consumers want smartwatches, but value fitness tracking features," <https://www.mobihealthnews.com/48579/report-consumers-want-smartwatches-but-value-fitness-tracking-features>, "18 Nov 2015.

Tibken, S., "Is the iPhone 6S a smash hit? Apple may offer clues Tuesday," <https://www.cnet.com/news/was-the-iphone-6s-a-smash-hit-apple-may-offer-clues-tuesday/>, 26 Oct 2015.

Feland, J., "Understand what the smart-home consumers really desire," <https://www.embedded-computing.com/embedded-computing-design/understand-what-the-smart-home-consumers-really-desire>, 2 Oct 2015.

Lima, J., "Smart Home devices disappoint and frustrate consumers," <https://www.cbronline.com/internet-of-things/smart-home-devices-disappoint-and-frustrate-consumers-4682482/>, 30 Sep 2015.

Daws, R., "Research: Consumers are getting happier with smart home technology, but overall demand is dropping," <https://www.telecomstechnews.com/news/2015/sep/30/research-consumers-are-getting-happier-smart-home-technology-overall-demand-dropping/>, 30 Sep 2015.

Evans, J., "7 signs of pent-up demand for Apple's latest iPhone," <https://www.computerworld.com/article/2982353/7-signs-of-pent-up-demand-for-apple-s-latest-iphone.html>, 9 Sep 2015.

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Evangelista, B., "Nest refreshes smart home device lineup, but will consumers buy?," <https://www.sfgate.com/business/article/Nest-refreshes-smart-home-device-lineup-but-will-6333798.php>, 16 Jun 2015.

Comstock, J., "Analysis: Fitbit leads fitness tracker space, but not overall wearable space," <https://www.mobihealthnews.com/43717/analysis-fitbit-leads-fitness-tracker-space-but-not-overall-wearable-space>, 21 May 2015.

Wilcox, J., "Apple Watch won't be 'wildly successful,'" <https://betanews.com/2015/04/09/apple-watch-wont-be-wildly-successful/>, 9 Apr 2015.

Holt, K., "Beats Debuts Brawn-Friendly Bluetooth Earphones," <https://www.technewsworld.com/story/80581.html>, 12 Jun 2014.

Taylor, B., "Smartphone Experts vs. Users: Who Knows Better?," <http://techland.time.com/2013/10/10/smartphone-experts-vs-users-who-knows-better/>, 10 Oct 2013.

Wong, S., "With Addition of HBO Go and WatchESPN, Are We Closer Than Ever to an Apple Inc. HDTV?," <http://www.minyanville.com/sectors/technology/articles/With-Addition-of-HBO-Go-and/6/21/2013/id/50454>, 21 Jun 2013.

Bonnington, C., "WHY APPLE ADDED LITTLE-KNOWN C SPIRE AS AN IPHONE CARRIER," <https://www.wired.com/2011/10/c-spire-gets-iphone-4s/>, 19 Oct 2011.

Zachary, G. P., "The Unsung Heroes Who Move Products Forward," New York Times, 30 Sep 2007.

Quinn, M., "Latest technology is at your fingertips, Apple's iPhone may point the way as touch screens replace the keyboard and mouse," Los Angeles Times, 7 Feb, 2007.

<http://www.vincentnguyen.com/synaptics-onyx-concept-cellphone-almost-a-reality-2006119.php>

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PATENTS

Hunt, Lewis. 1992. Three zone bed cover with an inflatable human form. U.S. Patent 5,146,634, filed September 11, 1991, and issued September 15, 1992.

Feland, III; John; Le; Thuy Thanh Bich; Huie; Mark Andrew, Hovden; Torbjorn , Acker, Jr.; Phillip Frank, 2015, Proximity sensor device and method with activation confirmation, U.S. Patent 8,947,364, filed 20 Aug 2007, and issued 3 Feb 2015.

Reynolds; Joseph Kurth, Dattalo; Tracy Scott, Trent, Jr.; Raymond A, Feland, III; John M, 2013, Determining actuation of multi-sensor-electrode capacitive buttons, filed 13 Dec 2012, and issued on 16 Jul 2013.

Reynolds; Joseph Kurth Dattalo; Tracy Scott,Trent, Jr.; Raymond A, Feland, III; John M, Baharav; Izhak , Maloney, Jr.; John P, 2013, Determining actuation of multi-sensor-electrode capacitive buttons, U. S. Patent 8,358,226, filed 27 Oct 2008, and issued on 22 Jan 2013.

Zawde; Fidel, Le; Thuy T. B., Feland; John, Trent, Jr.; Ray Alexander, Huie; Mark, 2010, Proximity sensor device and method with adjustment selection tabs, U.S. Patent 7,825,797, filed 2 Jun 2006, and issued on 2 Nov 2010.

Matsiev; Leonid, Kolosov; Oleg, Uhrich; Mark D. Rust; William, Feland, III; John M., Varni; John F., Walker; Blake, 2008, Environmental control system fluid sensing system and method, U.S. Patent 7,350,367, filed 27 Sep 2004, and issued 1 Apr 2008.

Bennett; James, Dales; G. Cameron, Feland, III; John M., Kolosov; Oleg, Low; Eric, Matsiev; Leonid, Rust; William C., Spitkovsky; Mikhail, Uhrich; Mark, 2007, Portable fluid sensing device and method, filed 20 April 2005, and issued 18 Sep 2007.

SOFTWARE PROFICIENCY

- MYSQL, Postgres, Ruby on Rails, Javascript, Meteor, React, D3.js, Highcharts, MongoDB
- Microsoft Office Suite, Microsoft Project, Visio
- Solidworks, Autodesk Inventor
- Embedded Microprocessors – BASIC Stamp, Motorola 68HC11, Atmel AVR, BASIC Atom, Arduino, C.H.I.P.

PROFESSIONAL AFFILIATIONS

American Society of Engineering Education

- Publications Chair for Entrepreneurship Division (1999-2002)
- Session Chair and peer reviewer for annual conference

American Society of Mechanical Engineers, member

- Peer review for Design Theory and Methodology Annual Conference

International Design Society, associate member

- Charter member
- Session Chair and Peer Reviewer for International Conference on Engineering Design

Stanford Center for Critical Foresight

- Member of Board of Advisors

MIT/Stanford Venture Lab

- Executive Board Member At Large

MIT Club of Northern California

- Semiconductor Division Steering Committee

MIT Alumni Association

- Class of 1994 President

HOBBIES AND ACTIVITIES

Cycling, Gourmet Cooking, Gadgets, Fatherhood, Sailing, Snowboarding, Hiking, Camping, World Travel